PURCHASING

THE NATIONAL MAGAZINE FOR PURCHASING AGENTS • SINCE 1915

TECHNOLOGY DEPT.



A CONOVER • MAST PUBLICATION

205 EAST 42nd STREET, NEW YORK

IT'S TIME TO TIGHTEN OUR BELTS ANOTHER NOTCH



Since the end of World War I, thousands of tons of nickel, chromium and other alloying elements have been employed to improve the qualities of steel. With ample supplies of these materials available, little thought was given to conservation. We wanted performance results, we got them.

But today, the picture has changed. We're in another war—a mechanized war—that demands the finest steels ever produced. Nickel, chromium and other substances have become critical alloying elements—because they're needed for *Production for Victory*—and because there just isn't enough immediately available to go 'round.

It's time to start pulling in our belts!

From the time when we began building for defense—now for victory—Republic has urged its customers to conserve critical alloys, and to cooperate with Governmental requests and restrictions designed for the protection of all.

To aid directly in conservation, Republic has continued its relentless research—its experimenting with new analyses which would save critical alloys, yet provide the qualities needed in steel today.

In most cases, it has been proved that critical elements alloyed in reduced quantities with steel would provide desired qualities when chemistries are properly balanced.

At the same time, Republic has warned customers of probable shortages, and has recommended *changes that eventually must be made.* Assistance has been given in the redesign of sections in preparation for keeping production moving with steels of lower alloy content—without sacrifice of needed qualities in the finished product. Suggestions have been offered on machining, forging and heat treating practices where changes were indicated.

America's greatest danger today is lost time in production. Never before in our history has time been so important. One airplane, gun or ship today may be worth a dozen tomorrow.

Republic is fully aware that its job today and tomorrow is to produce the best steel possible—with the materials available—for each specific need—and, to the utmost of its facilities, in the quantities required.

But Republic feels that this is only part of its duty. Hence, Republic's eagerness to be of greatest assistance to its customers—to help in the selection, application and fabrication of available steels to reach our mutual objective, *More Production for Victory.*

REPUBLIC STEEL
PRODUCTION FOR VICTORY

REPUBLIC STEEL CORPORATION

Alloy Steel Division Sales Offices: Massillon, Ohio • General Offices: Cleveland, Ohio

Berger Manufacturing Division • Culvert Division • Niles Steel Products Division
Steel and Tubes Division • Union Drawn Steel Division • Truscon Steel Company

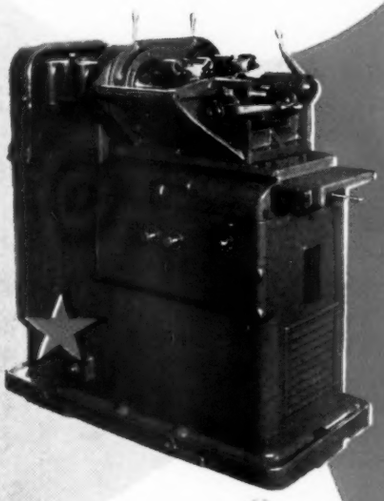
★ ★ ★

ALLOY and CARBON STEELS • STAINLESS STEEL • PLATES • TIN PLATE • NUTS • BOLTS • RIVETS • NAILS • PIG IRON
BARS and SHAPES • STRIP • SHEETS • PIPE and TUBING • FARM FENCE • WIRE • FABRICATED STEEL PRODUCTS

Quietly and Unseen – ★ Thousands of CENTURY MOTORS



are playing their part by producing smooth power for the precision production of war needs

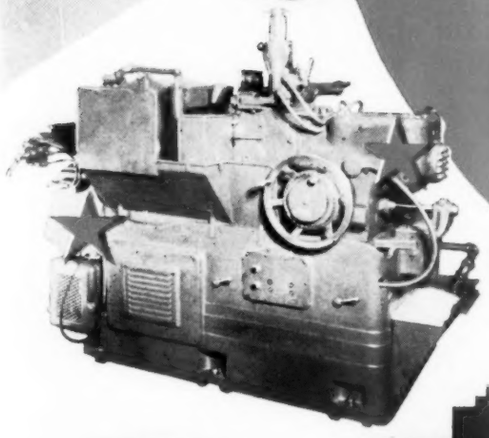


Hidden from view in the streamlined bases of thousands of the most modern machine tools, Century Motors—through their unusual freedom from vibration — are quietly contributing to more efficient production by making possible closer tolerances and consequently fewer rejects.

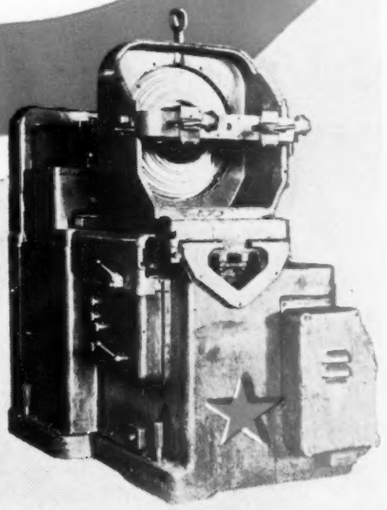
Built to stand the gaff of continuous, 3-shift, high speed production, Century Motors ask for no vacations or rest periods.

For a quick solution of any motor problem — get in touch with the nearest Century Motor Specialist. His wide experience in specialized motor application plus the wide range of Century sizes and types may save you time and trouble.

CENTURY ELECTRIC CO.
1806 Pine Street, St. Louis, Missouri
Offices and Stock Points in Principal Cities







Century MOTORS

One of the Largest Exclusive Motor and Generator Manufacturers in the World.

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PURCHASING, published monthly by Conover-Mast Periodicals, Inc. Publication Office, East Stroudsburg, Pa. Editorial and Executive Offices, 205 East 42nd St., New York, N. Y. Entered as second-class matter January 7, 1941, at the Post Office in East Stroudsburg, Pa., under the act of March 3, 1879. Subscription, $3.00 a year in the U. S. A., Canada and Foreign $4.00. Volume XII, No. 5.



HERE'S WHAT THIS G-E TRADE MARK MEANS TO YOU!

1. ALL THE BENEFITS OF MAZDA* RESEARCH . . . The very latest improvements coming from MAZDA Research laboratories are immediately available in the G-E MAZDA Fluorescent lamps you buy.

2. ALL THE ADVANTAGES of General Electric's 60 years of lamp making experience, including all the manufacturing skill, engineering resources and knowledge of General Electric . . . go into the G-E MAZDA F lamps you purchase.

3. MORE LIGHT AT LESS COST . . . Since MAZDA Research introduced the first practical fluorescent in 1938, G-E MAZDA F lamps have been steadily improved in efficiency, and reduced in price. On some lamps the price has been reduced as much as 60% since 1938.

4. YOU HAVE THE CHOICE of a *complete* line of G-E MAZDA F lamps, from the tiny 6-watt to the giant 100-watt size, uniform in quality and color.

5. YOU ENJOY THE BENEFITS of a public preference for products that carry the famous mark of G-E quality. General Electric's research leadership has long been a factor in the production of quality products.

Of course, fluorescent lamps are just one of many types of lamps General Electric makes to supply every lighting need. If you have a knotty lighting problem in your plant, General Electric's lighting engineering service is available to help you solve it. For full details, see your G-E lamp supplier or write General Electric Company, Dept. 166-P-5, Nela Park, Cleveland, Ohio.

***MAZDA** is not the name of a thing, but the mark of a research service.*

G-E MAZDA LAMPS

When writing General Electric Company please mention Purchasing

HERE'S WHAT IT MEANS TO PLANTS IN WAR PRODUCTION!

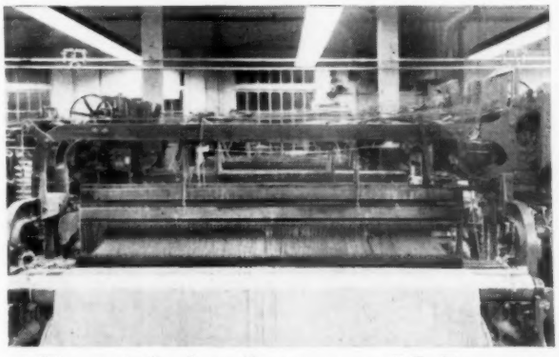
GENERAL ELECTRIC Fluorescent lighting is being used in many war production plants—like the plants shown below—where speed, precision and reduced spoilage are so vital. Yet thousands of other war industry plants—especially the smaller ones—urgently need this cool "indoor daylight" to speed their production right now. You can buy new G-E Fluorescent lighting to get the light you need . . . *provided you get a suitable WPB priority rating.*



1 Inspection department of a war industry plant. Since new fluorescent lighting was installed, inspection of small parts has been speeded up and errors reduced, while both production and efficiency have been increased.



2 In this assembly plant of a woodworking machinery manufacturer, G-E Fluorescent lighting made it easier to read micrometers and resulted in using 15% less time to make settings and adjustments of machinery.



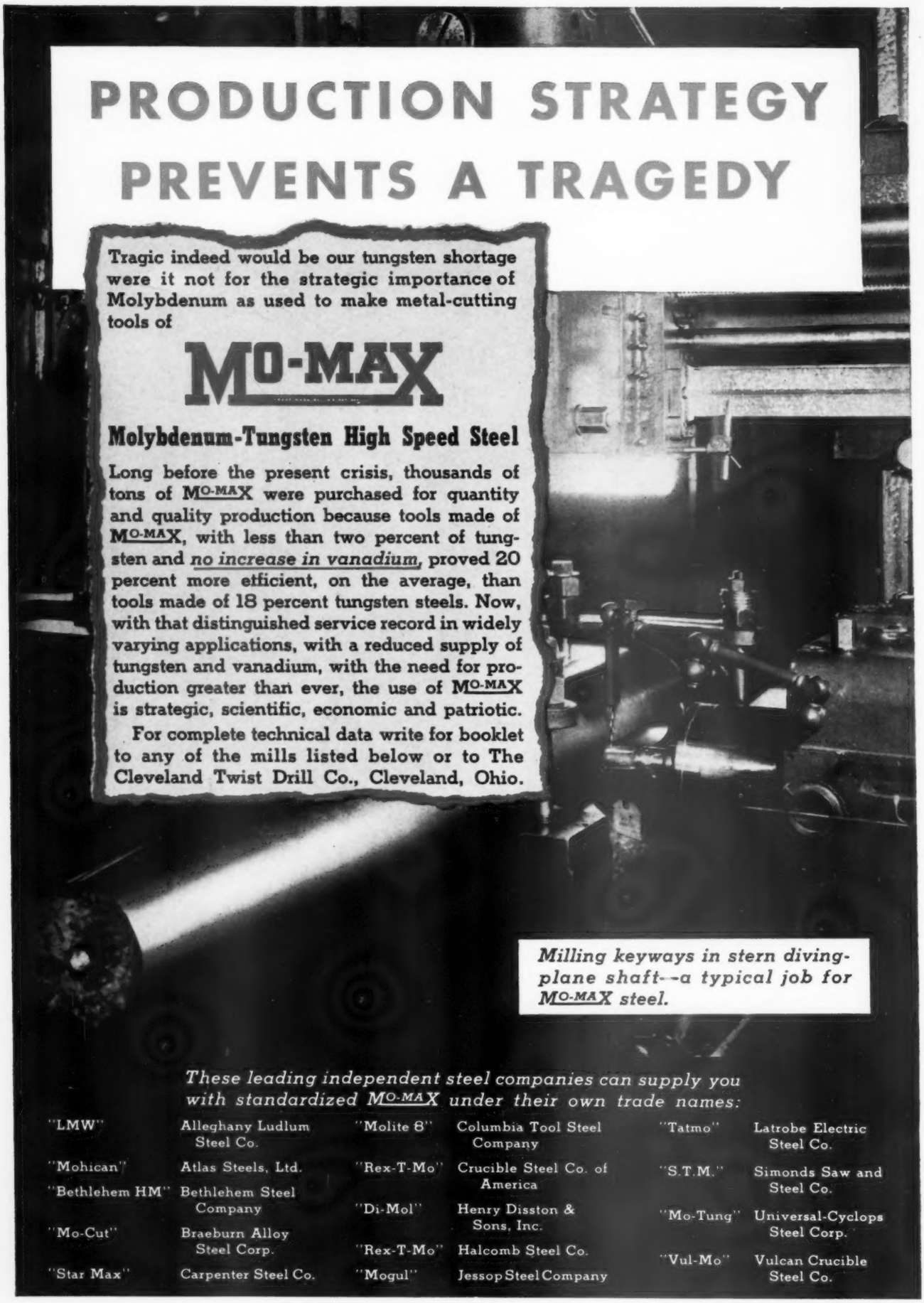
3 Weave shed of textile company. G-E Fluorescent lighting helped effect an increase in efficiency in one style of weaving from 80.5% to 84.0%. Another style showed increase in weaving efficiency from 83.0% to 87.0% with 18% decrease in sewing costs.



4 This new war plant, now producing a vital war weapon, is lighted with 18,000 40-watt G-E MAZDA F lamps. Production is speeded up. Workers are happier and less tired because they conserve energy through easier seeing.

GENERAL ELECTRIC

When writing General Electric Company please mention Purchasing



PRODUCTION STRATEGY PREVENTS A TRAGEDY

Tragic indeed would be our tungsten shortage were it not for the strategic importance of Molybdenum as used to make metal-cutting tools of

MO-MAX

Molybdenum-Tungsten High Speed Steel

Long before the present crisis, thousands of tons of MO-MAX were purchased for quantity and quality production because tools made of MO-MAX, with less than two percent of tungsten and *no increase in vanadium*, proved 20 percent more efficient, on the average, than tools made of 18 percent tungsten steels. Now, with that distinguished service record in widely varying applications, with a reduced supply of tungsten and vanadium, with the need for production greater than ever, the use of MO-MAX is strategic, scientific, economic and patriotic.

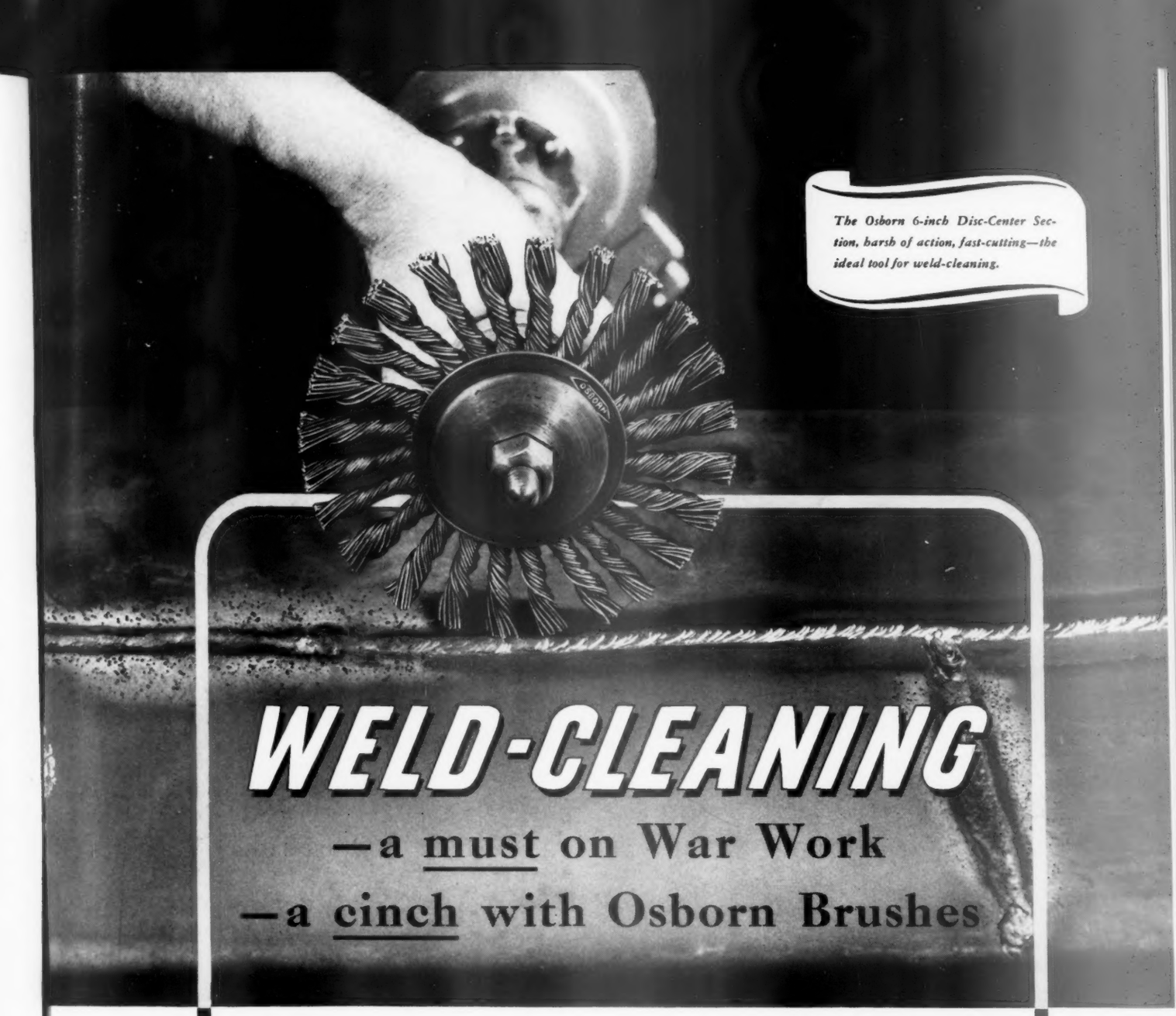
For complete technical data write for booklet to any of the mills listed below or to The Cleveland Twist Drill Co., Cleveland, Ohio.

Milling keyways in stern diving-plane shaft--a typical job for MO-MAX steel.

These leading independent steel companies can supply you with standardized MO-MAX under their own trade names:

"LMW"	Alleghany Ludlum Steel Co.	"Molite 8"	Columbia Tool Steel Company	"Tatmo"	Latrobe Electric Steel Co.
"Mohican"	Atlas Steels, Ltd.	"Rex-T-Mo"	Crucible Steel Co. of America	"S.T.M."	Simonds Saw and Steel Co.
"Bethlehem HM"	Bethlehem Steel Company	"Di-Mol"	Henry Disston & Sons, Inc.	"Mo-Tung"	Universal-Cyclops Steel Corp.
"Mo-Cut"	Braeburn Alloy Steel Corp.	"Rex-T-Mo"	Halcomb Steel Co.	"Vul-Mo"	Vulcan Crucible Steel Co.
"Star Max"	Carpenter Steel Co.	"Mogul"	Jessop Steel Company		

2173A



The Osborn 6-inch Disc-Center Section, harsh of action, fast-cutting—the ideal tool for weld-cleaning.

WELD-CLEANING

—a must on War Work
—a cinch with Osborn Brushes

● Government specifications call for the cleaning of all welds prior to painting or other finishing. Welding scale and slag must be completely removed to prevent corrosion.

In spite of the vast amount of weld-cleaning that must be done, too many are using slow, inefficient hand methods.

This is a job for Osborn power-driven brushes. This is a job for the speed and efficiency of the many Osborn brushes expressly designed for cleaning welds of every kind quicker, better, and at much lower cost.

● Radial and cup brushes for large areas, flat seams, inside angles and curves.

● Special end brushes for corners and inaccessible places.

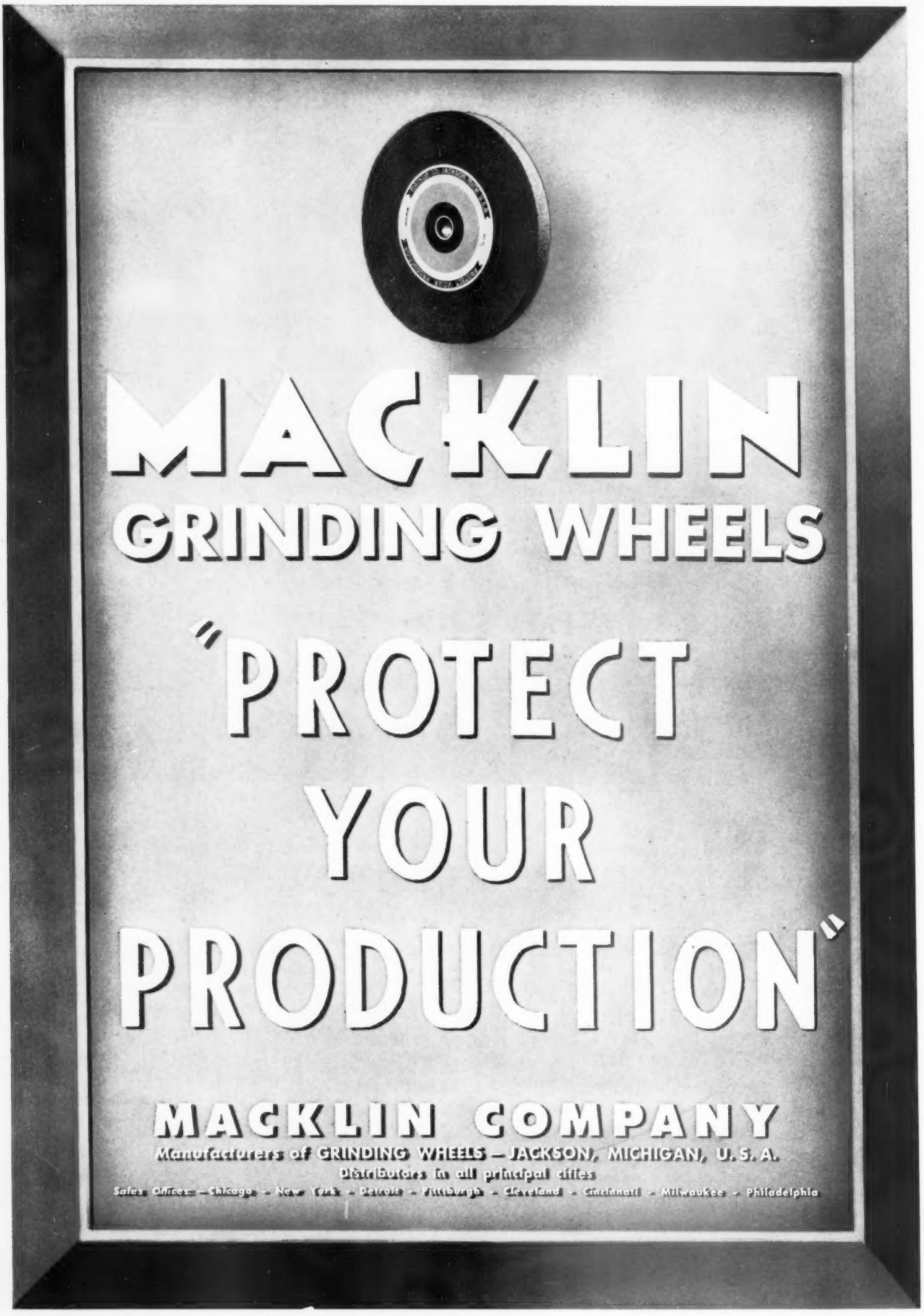
With welding far more widely used than ever before and weld-cleaning a *must,* speed of cleaning now holds the key to efficiency.

Increase that speed and boost production by cleaning your welds—large and small—with the Osborn brush designed for the job. There's an Osborn representative near you who will gladly show you how Osborn Brushes can step up *your* output. Write *The Osborn Manufacturing Company, 5401 Hamilton Avenue, Cleveland, Ohio.*

WORLD'S LARGEST MANUFACTURER

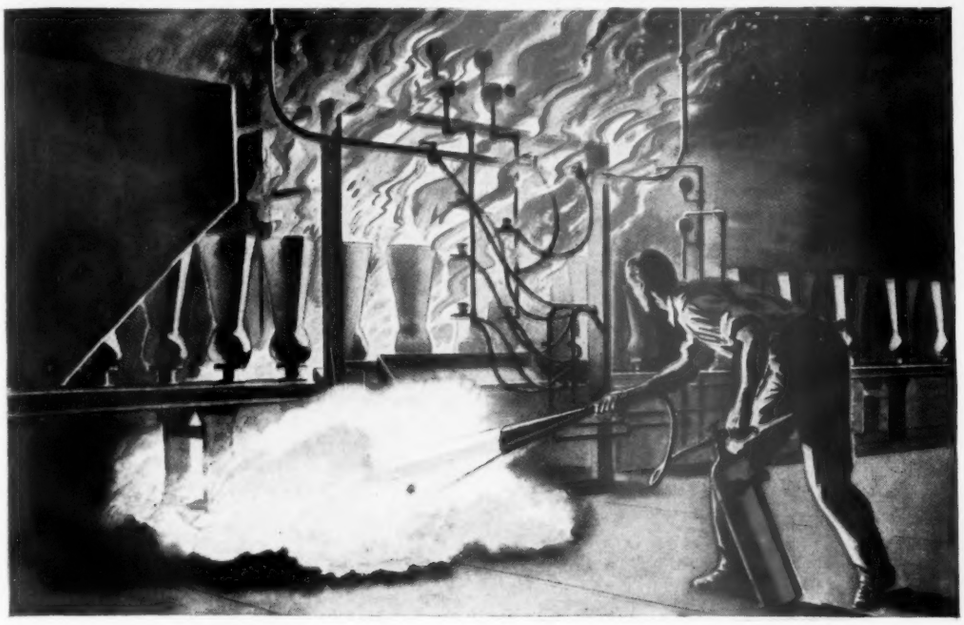
OF BRUSHES FOR INDUSTRY

Osborn Brushes



When writing Macklin Company please mention Purchasing

FIRE AND HOW TO FIGHT IT!





Here's *20 pounds* of fire-killing *wallop*

...FOR FLAMING LIQUIDS, ELECTRICAL FIRES

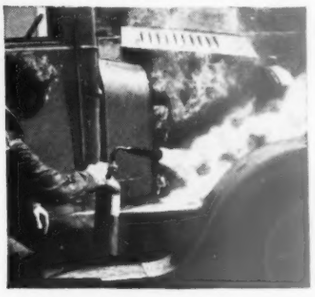
Different fires need different extinguishing methods. For example, we don't tell you to use LUX extinguishers on paper and rubbish fires. That's not their main job, although they often do it.

The real fire fighting job of LUX extinguishers is killing electrical and flammable liquid fires. These fires need *smothering*. LUX blankets them in a fast-expanding blizzard of carbon dioxide snow-and-gas, one of the fastest-known extinguishing agents.

The LUX twenty-pounder shown in the illustration carries a heavy punch against industry's toughest fires. If you're protecting flammable liquids or electrical equipment, here's your fire fighter. Its 20 lbs. of carbon dioxide give it ample hitting power to knock down blazes that baffle ordinary extinguishers. That's why it's industry's favorite among all LUX models!

BUILT-IN EXTINGUISHING

Many industrial fire hazards are simply *too big* for portable extinguishers. That's when you need a Built-in LUX System. The fire-fighting reserve of carbon dioxide gas is held in cylinders safely out of danger zone. LUX Shielded Nozzles are placed directly in the hazard area, to blanket any blaze with a heavy cloud of LUX snow-and-gas. Automatic controls make LUX Systems panic-proof. Manual controls may be used, or you may combine both types.



AIM LIKE A GUN

Lightweight champion among fire extinguishers is the Kidde-LUX. Just aim at the blaze, pull the trigger, and knock the flames dead! Here's the easiest-to-handle fire fighter that ever smothered a blaze. Untrained workers use it naturally, correctly. No pumping, no fuss. A touch with your trigger finger does the trick. Kidde-LUX units carry two or four pounds of carbon dioxide, depending on the fire hazard you're guarding. For example, laboratories use the 4-pound size Kidde-LUX with great success.

LUX — SNUFFS OUT FIRE

Walter Kidde & Company
Incorporated
554 West St., Bloomfield, N. J.

WATCH ELECTRICAL MAINTENANCE



21% of all industrial fire losses in December, 1941, came from electrical causes, according to *Factory Mutual Record*. Yet experts will tell you that, almost without exception, fires in electrical equipment can be prevented by careful inspection, attention to oiling and cleaning. Are you taking proper care of electrical equipment in your plant? This pays big safety dividends.

SLAM THE DOOR ON FIRE



Know what happens when fire hits a process room protected by LUX Pressure Trips? As LUX carbon dioxide gas rushes on its way to smother fire, it trips releases which slam fire doors, close windows, shut off fans and agitators, and close ventilator ducts. Use LUX Pressure Trips in combination with LUX Built-In Systems . . . and keep fire in a flame-tight jail.

KNOWLEDGE IS INSURANCE



Here are four ways in which your employees can help you stop fires: 1 — By knowing how to use fire extinguishers; 2—By knowing *how* and *where* to turn in a fire alarm; 3 — By understanding the special fire hazards in their section of the plant; 4 — By carefully following the safety and housekeeping routine regarding smoking, waste disposal, proper clean-up methods.

Yours CATALOGS BULLETINS LITERATURE ON REQUEST TO AID YOU IN PURCHASING



1—DUST COLLECTOR EQUIPMENT.

American Foundry Equipment Co.

Contents: A 58-page catalog describing "Dustube" dust collectors, both knock-down and assembled types. A handy manual to serve plant engineers and officials in the selection of proper control equipment for specific dust problems. It provides full information and photographs of the models available with operating data, construction features and basic specifications of cloth bag type collectors. A complete engineering manual section is included which gives practical data for efficient operation of a dust control system, technical layouts and engineering tables and charts.

2—REVISED BRONZE TABLE.

Ampco Metal, Inc.

Contents: A single sheet which lists in parallel bronze specifications that are largely used by government contractors. The table includes all the alloy grade numbers cast by Ampco to these various government specifications. Chemical composition of each alloy is given for ready reference.

3—SEAMLESS STEEL TUBING.

The Babcock & Wilcox Tube Co.

Contents: A convenient technical data card giving a complete table of tolerances for round, seamless steel mechanical tubing for both cold-drawn and hot-finished tubes.

4—DIRECT CONNECTED PUMPS.

Blackmer Pump Company.

Contents: A 4-page bulletin covering the features and construction details of direct-connected rotary type pumps, with capacities of 5, 10 and 20 gpm. Drawings and photographs help explain the operating principle and mechanical features. Several models are shown and complete specifications are included.

5—METALLIC RECTIFIERS.

The Benwood Linze Company.

Contents: Bulletin describes industrial metallic rectifiers for operating d-c equipment from a-c circuits. Covers the features, advantages and details of the construction. Photographs show the equipment.

6—FIRST AID EQUIPMENT.

E. D. Bullard Company.

Contents: A leaflet designed as an aid in determining what equipment is needed in a plant to give it wartime emergency first aid protection which will meet civilian defense recommendations. Describes personal protective equipment for air raid wardens, and some items, such as air raid sirens, for plant protection. Leaflet shows the equipment necessary for groups of 25-50, 50-100 and 100-200 people, or for each floor.

7—LIFTING JACKS.

The Buda Company.

Contents: A pocket size booklet featuring all types of lifting jacks and how to select the correct jack for certain jobs. A table facilitates in this selection. Photographs show the various types and specifications are given for each model.

8—IRON AND STEEL PRODUCTS.

A. M. Byers Company.

Contents: A comprehensive 62-page book giving complete information about wrought iron, tubular and hot rolled products, tubular steel products and alloy steels. Elaborate tables of specifications are included for each product. Useful tables of engineering information are likewise given.

9—AIR CONDITIONING.

Carrier Corporation

Contents: A condensed catalog covering air conditioning, refrigeration and space heating equipment. Book is profusely illustrated and contains detailed specifications. Divided into sections describing self-contained "Weathermakers," and equipment for summer and winter air conditioning, dehydration, year around air conditioning, refrigeration, low temperature air conditioning and industrial and commercial heating.

10—HELP FOR SMALL COMPANIES.

Copper & Brass Research Association.

Contents: "How Small Industries Can Go After War Work" is the title of an illustrated booklet designed to show small companies how to go after contracts or subcontracts through the Contract Distribution Branch, Production Division, War Production Board. Contains information on how industry can secure loans for equipment to make war armament,

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I wish to receive the following **LITERATURE:**

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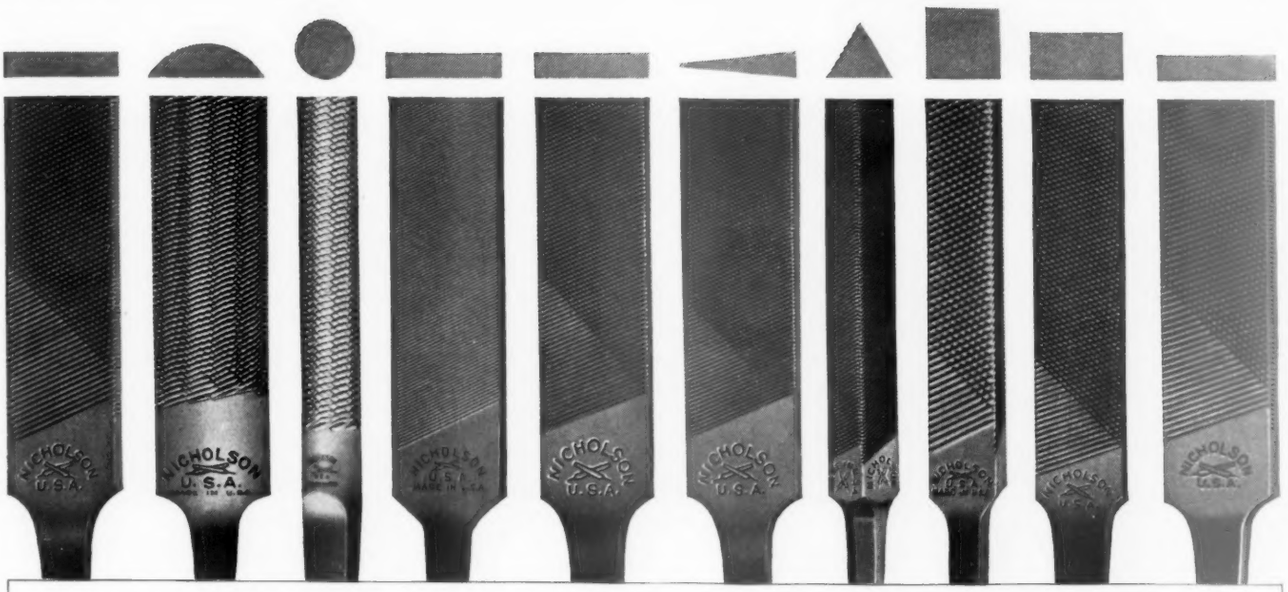
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COMPANY_____

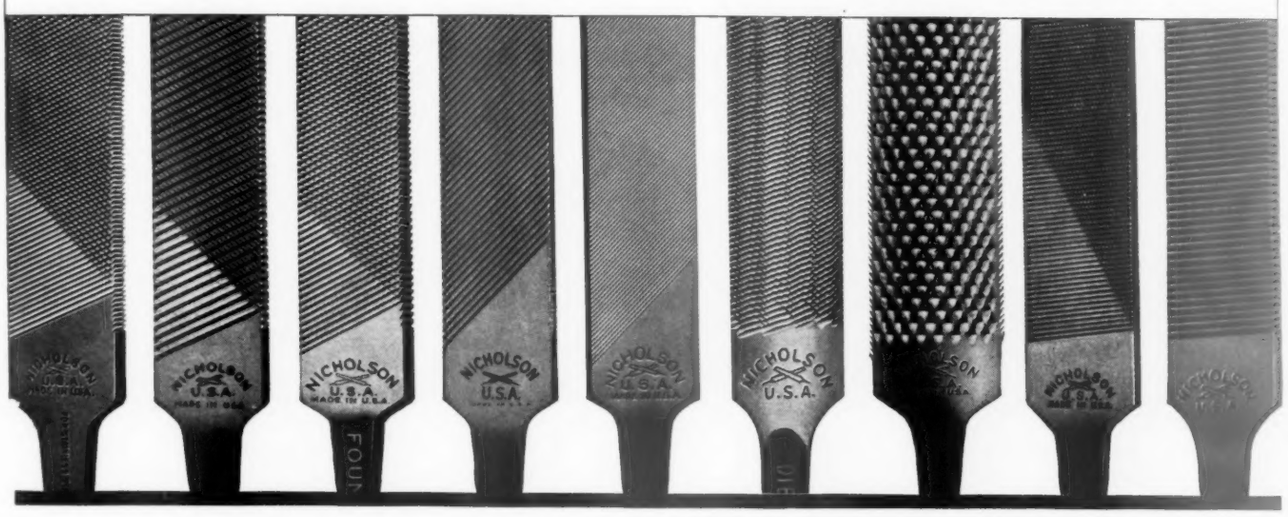
ADDRESS_____

CITY_____ STATE_____

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▲THE REGULARS★ ▼THE SPECIALISTS★★



You can command what is probably the most complete army of files in the world when you make Nicholson or Black Diamond brands your standard.

Thus, production lines keep moving, and maintenance and repair work steps along, when your men can always lay their hands on *The right file for the job.*

And when there are special filing problems to be mastered, Nicholson is always a source of help to which you can turn.

Toward meeting heavy war-industry demands, the above are some of the most needed file types under maximum production in the Nicholson factories:

★**REGULAR PURPOSE** (*left to right*) — Flat, Half Round, Round, Mill, Warding, Knife, Three-Square, Square, Pillar, Hand.

★★**SPECIAL PURPOSE** (*left to right*) — For Stainless Steel, Aluminum "A," Foundry, Shear Tooth, Long Angle Lathe, Die Cast, Aluminum Rasp, Brass and Lead Float.

To win the war, we're co-operating with industry—with all we've got! For your file needs, consult your mill-supply house. The Nicholson guarantee: *Twelve perfect files in every dozen.*

NICHOLSON FILE CO., PROVIDENCE, R. I., U. S. A.
(Also Canadian Plant, Port Hope, Ont.)

LET'S GO! U.S.A. · KEEP 'EM FLYING!

NICHOLSON FILES
FOR EVERY PURPOSE

NICHOLSON U.S.A. MADE IN U. S. A.

Yours CATALOGS BULLETINS LITERATURE ON REQUEST

how to form pools and other useful data. A list of Regional Offices and addresses, the names of officers and telephone numbers are included.

11—DOUBLE FILTER RESPIRATOR.
H. S. Cover.
Contents: Leaflet features several models of double filter respirators. Photographs show each type in use. Also covered are acid goggles and miniature respirators. Prices are given.

12—POROUS TYPE GRINDING WHEEL.
A. P. deSanno & Son, Inc.
Contents: Booklet describes "Por-os-way", a precision grinding wheel which is said to increase production per man per machine, reduce the probability of burning the work, and many other advantages listed. Photographs show the various styles and help explain the physical features of the material.

13—RESIN-BONDED PLYWOOD.
Durez Plastics & Chemical, Inc.
Contents: A booklet on interesting facts and illustrations concerning the history, manufacture and uses of resin-bonded plywood. Numerous photographs show how the plywood is made and many of its uses.

14—INSPECTION GAGES.
Federal Products Corp.
Contents: A useful catalog listing all types of shell dial indicator inspection gages, including those specially designed for checking cartridge cases, projectiles, primers, fuses, bombs and small arms ammunition. Elaborate drawings and photographs show full details of each type gage, as well as the kind of parts they are designed to check. Types of gages range from caliper gages to more elaborate models which check several inside and outside diameters with one setting of the work. Concise sheets of miscellaneous data assist in the selection of the proper type gage for particular jobs.

15—PRESSURE RECORDERS.
The Foxboro Company.
Contents: Factual information about pressure recorders arranged so as to be of greatest time-saving convenience to readers in selecting the type of recorder best suited to their particular needs. Well illustrated, covering instruments for the measurement and recording of industrial pressures of all kinds, in ranges from 1 inch of water to 20,000 lbs. A complete list of standard ranges is given, accompanied by full-size reproductions of specimen charts.

16—METAL ENCLOSED SWITCHGEAR.
General Electric Company.
Contents: Attractive catalog describes the construction, selection and application of various types of metal enclosed switchgear. Photographic diagrams show typical installation layouts and numerous photographs show the features of the individual equipment.

17—ELECTRIC GAGING.
General Electric Company.
Contents: Booklet tells in a concise and interesting fashion about 11 outstanding instances where savings in both time and money, and at the same time improved quality, have resulted from the application of extremely sensitive yet sturdy electric gaging equipment. Illustrated are such electric gages as the strain, pressure, film thickness, eccentricity, profile, electrolimit, and the tensiometer.

18—INTERCHANGEABLE BALL BEARINGS
New Departure Div. General Motors.
Contents: Lists all standard New Departure ball bearings together with bearing numbers of competitors' bearings with which they will interchange.

19—PROPER CARE OF RUBBER.
B. F. Goodrich Company.
Contents: A series of 6 vest pocket size pamphlets on "How to Get the Most Service Out of Industrial Rubber Products," which are designed to assist in the program of rubber conservation. Give very useful information on transmission belting, conveyor belting, V-belts, belt salvage. etc.

20—MECHANICAL RUBBER GOODS.
The Goodyear Tire & Rubber Co.
Contents: A comprehensive 60-page book describing all types of industrial transmission belting, belt fasteners, dressings, conveyor and elevator belting, industrial hose, hose for the oil industry, railroad goods and other products. Large, clear photographs show each item and many of its uses.

21—BAND SAWS.
G. W. Griffin Company.
Contents: A 4-page circular lists the specifications and prices of metal cutting band saws. Both coils of band saw stock and saws cut to length and welded are listed.

22—LIGHTING EQUIPMENT.
Edwin F. Guth Company.
Contents: Catalog covers a complete line of up-to-date luminaires for fluorescent and incandescent lamps. An "eye-to-the-future" feature describes how the Guth fluorescent provides a permanent lighting system with flexible foot candle capacity for increased illumination when desired.

23—BRASS & BRONZE CASTINGS.
Hammond Brass Works.
Contents: "Practical Data on Brass and Bronze Castings" is a booklet designed as a handy reference work of standard specifications, applications and other related information that will be useful to those who design or purchase brass and bronze castings. Contains complete data on copper-tin-lead-zinc alloys, aluminum bronzes and manganese bronzes. Includes such supplementary data as Army and Navy and S.A.E. specifications, A.S.-T.M. definitions of standard terms, tables of physical constants, etc.

PURCHASING 205 EAST 42ND ST., NEW YORK, N. Y.

I wish to receive the following **LITERATURE:**

NUMBERS_____

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

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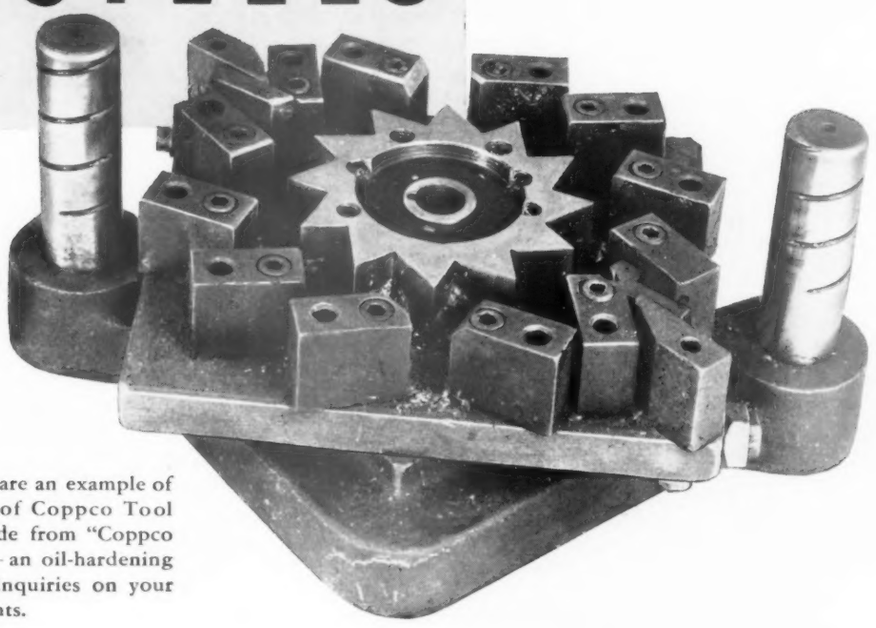
COPPCO

FOR DEPENDABLE

PERFORMANCE IN

TOOL STEELS





These blanking dies are an example of the successful use of Coppco Tool Steels. They are made from "Coppco 200"— black label — an oil-hardening steel. We welcome inquiries on your tool steel requirements.

COPPERWELD STEEL COMPANY WARREN, OHIO

"COPPCO .75"
Hardens to give greater toughness than Coppco Universal or Coppco 1.10

'COPPCO UNIVERSAL"
Balanced hardness and toughness
Good cold cutting properties



"COPPCO 1.10"
Gives maximum hardness
Holds a keen cutting edge
Resists wear

"COPPCO 200"
Non-deforming · Deep-hardening
Wear resistant

WATER HARDENING
OIL HARDENING

When writing Copperweld Steel Company please mention Purchasing

Yours CATALOGS BULLETINS LITERATURE ON REQUEST

24—PNEUMATIC VISES.

Hannifin Manufacturing Co.

Contents: A 4-page bulletin features several types of pneumatic vises for use on drill presses and milling machines. Photographs and dimension drawings are given. Also shown are "packless" air control valves, both hand and treadle.

25—CORRUGATED PACKAGING.

The Hinde & Dauch Paper Co.

Contents: A new house magazine titled "The Package Laboratory News" is designed to give manufacturers helpful, authoritative news of corrugated packaging developments to the end that packaging may be made more efficient, more economical, and more effective. The publication will endeavor to serve as a clearing house of all H & D corrugated packaging information. Copies will be sent regularly to those desiring them.

26—SELF-CONTAINED POWER PLANT.

Kato Engineering Company.

Contents: Circular features Katolight power plants of 7.5, 10 and 15 kw capacity. Full description is given about the generator and gasoline engine. Included is a photograph and a dimension drawing.

27—CUTTING TOOLS AND BLANKS.

McKenna Metals Company.

Contents: A useful 36-page book covering many types of steel and metal cutting tools and blanks. A great deal of valuable information is given about the use and proper grinding of these tools. Full specifications are given for each of the various styles and types of tools discussed. Diagrams show dimensions and angles. One section tells how to avoid grinding cracks in Kennametal tools.

28—LAMP LOCK.

Laduby Company.

Contents: A circular describing a device for locking fluorescent lamps against vibration, to prevent premature lamp failure, loosened lamps, accident hazards and costly lamp replacements. Drawings show how the device functions.

29—V-BELTS.

The Medart Company.

Contents: A circular briefly describing "Cable-Core" V-belts, their construction, use and advantages. Also shown briefly are wood pulleys, babbitted bearings of many types, flange couplings and sheaves.

30—FREE-WHEELING CLUTCH.

Morse Chain Company.

Contents: A new 6-page bulletin covers clutch applications for indexing, free-wheeling, and backstop operations. Shows how closer tolerances and rate of feed can be greatly increased in drive feed roll indexing operations, such as punching, forming, shearing, etc. In well illustrated form it presents principles, characteristics, advantages and detailed construction of Morse indexing and free-wheeling clutch lines. Includes diagrammed and charted engineering data, such as power-speed ratios, load capacities, complete dimensions and prices.

31—ENGINEERING DATA BOOK.

National Electric Products Corp.

Contents: A very elaborate book with over 300 pages devoted to such products as conduit, industrial busways, surface raceways, plug-in strip, armored cable, flexible tubing, fuses, wire and cable, brackets and wireholders and other items. Complete specifications and prices are given for each product, and photographs of the various styles are shown. One entire section is filled with useful engineering information including electrical symbols used in architectural plans, numerous tables, wiring diagrams and formulas. A very useful book for any plant engineer.

32—GRINDING HINTS.

Norton Company.

Contents: This company is distributing a semi-monthly cartoon - style bulletin carrying helpful hints on grinding. Titled "On the Grinding Line," these two-color cartoons portray scenes characteristic of any plant where grinding is done. The conversation of the men working, as well as statements printed in large, bold letters convey one or two fundamental principles of grinding procedure in each issue. These will be sent regularly to anyone desiring to receive them.

33—CLEANING DIGEST.

Oakite Products, Inc.

Contents: A very interesting and useful 5-page digest which reviews materials, methods and procedures successfully used for effectively handling 28 essential, commonly recurring maintenance jobs. Prepared for plant maintenance superintendents, safety engineers and other executives, the digest, in data form sheets, provides many ideas and suggestions for speeding certain jobs, conserving man-hours, increasing maintenance efficiency, improving plant safety, and shortening "down time" for equipment and getting it quickly back into service.

34—LIGHT METAL FORMING.

O'Neil-Irwin Manufacturing Co.

Contents: Features Di-Acro benders, brakes and shears for the bench forming of metals, substituting for dies and many other uses. Large, clear photographs show how the equipment is used and the type of work it can perform. Full details and specifications of these useful pieces of equipment are given.

35—UNIVERSAL TOOL GRINDERS.

Production Machine Company.

Contents: An 8-page bulletin describes the "Greenfield" cutter and reamer and universal tool grinders. Full details are given in the text and shown by drawings and photographs. The numerous applications of these useful machines are covered.

36—POWER TRANSMISSION.

Power Transmission Council, Inc.

Contents: An interesting treatment of modern power drives and their application to various types of work. Advan-

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37—COVERS FOR BEARINGS.

R-S Products Corporation.

Contents: Bulletin features standard covers for ball and roller bearings—flat, medium and deep curves in two types of fastening flange—lug and round. Explains low unit cost in small or large quantities and the savings of costly "nuisance" machine set-ups. Contains detailed drawings, sizes and easy method of ordering.

38—ILLUMINATED MAGNIFIER.

The George Scherr Company.

Contents: A 4-page folder fully describing the new Magni-Ray, an illuminated magnifier especially developed for close inspection of all parts entering airplane construction. The folder illustrates the device in use for all types of inspection of riveting, welding, repair and maintenance work, for inspection of small screw machine parts, stampings, spark plugs and other components entering airplanes.

39—MACHINE TOOL REBUILDING.

Simmons Machine Tool Corp.

Contents: A 58-page book showing how machine tools are rebuilt, converted into special designs and utilized for modern machine production. Large photographs show numerous actual examples of old machines which have been converted and are now in use. A book on a timely subject, which should be of interest to any one looking for machine tools, or with old tools they want modernized.

40—PYROMETERS.

C. J. Tagliabue Mfg. Co.

Contents: Well illustrated catalog lists several models of electric pyrometers, showing full construction details and explanation of their operation. Many installation photographs show the "Celectray" recording controllers in use.

41—PAPER BOOKLETS, ETC.

Strathmore Paper Company.

Contents: New folder "How to Build Tomorrow's Business," gives 15 practical suggestions for institutional booklets, house organs, articles, speeches, special letters, statements, reports, prospectuses, directories, etc. Each suggestion is in the form of a miniature representing a sales and advertising idea. A very useful folder full of useful ideas and suggestions.

42—ELECTRIC HOIST.

Wright Mfg. Div.,
American Chain & Cable Co.

Contents: Complete information about the Speedway Electric Hoist, giving data on the many features of this new low-cost electric hoist.

43—MOTORS AND CONTROLS.

Westinghouse Electric & Mfg. Co.

Contents: A 32-page catalog shows the many phases of research, production, and testing of motors and controls. A number of photographs are used to illustrate most of the scenes that would come to the attention of a visitor going through this department in the plant. Line assembly and testing of controls is covered pictorially, showing how precision tools and gages coupled with operator skill contribute to rapid and accurate production.

44—HOSE CLAMPS.

Wittek Manufacturing Co.

Contents: Four-page bulletin features several types of hose clamps developed for aircraft. Each type is illustrated and a table of size specifications is included.

45—ELECTRIC MOTORS.

Wagner Electric Corporation.

Contents: Booklet contains detailed descriptions of the construction of repulsion-start-induction motors, repulsion-induction motors, capacitor-start motors, split-phase motors, d-c motors, small polyphase motors, fan motors, and explosion-proof motors. Photographs and performance curves of each type.

46—WATER TREATMENT.

Water Treatment Co. of America.

Contents: Explains the functions of "Baerite" Organic Formulas in balancing waters which cause rust, corrosion, foaming, priming and other boiler troubles. A direct comparison is drawn to show how this method duplicates Nature's way of rendering water harmless in boiler temperatures and pressures.

47—DOUBLE-ACTION HAND CLEANER.

West Disinfecting Company.

Contents: Folder features the uses and advantages of "Lan-O-Kleen," an industrial hand soap. This is a powdered soap of mildly alkaline reaction compounded with granular corn-meal which has been impregnated with anhydrous lanolin. Photographs illustrate the advantages of the product.

48—FLUORESCENT LIGHTING.

Wheeler Reflector Company.

Contents: A 48-page catalog covering all types of fluorescent lighting fixtures. Photographs, descriptive text and specifications are given for each of the many styles shown. There is also an interesting 2-page discussion of fluorescent lamps and their operation. Bulletin No. 70.

49—GRINDING OILS AND LUBRICANTS.

The White & Bagley Company.

Contents: Many types of grinding oils and lubricants compounded for precision grinding are discussed. Numerous photographs showing applications to various types of work are shown. Specifications and recommendations are given. Size of book, 32 pages.

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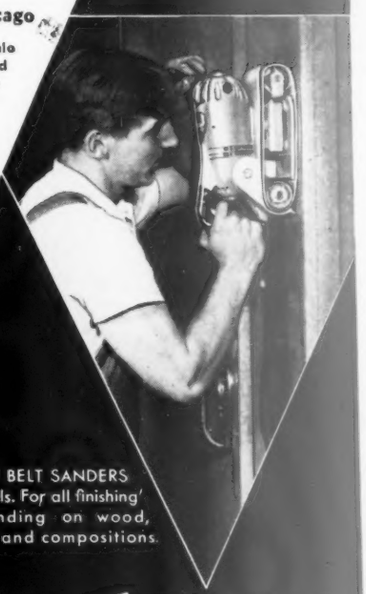
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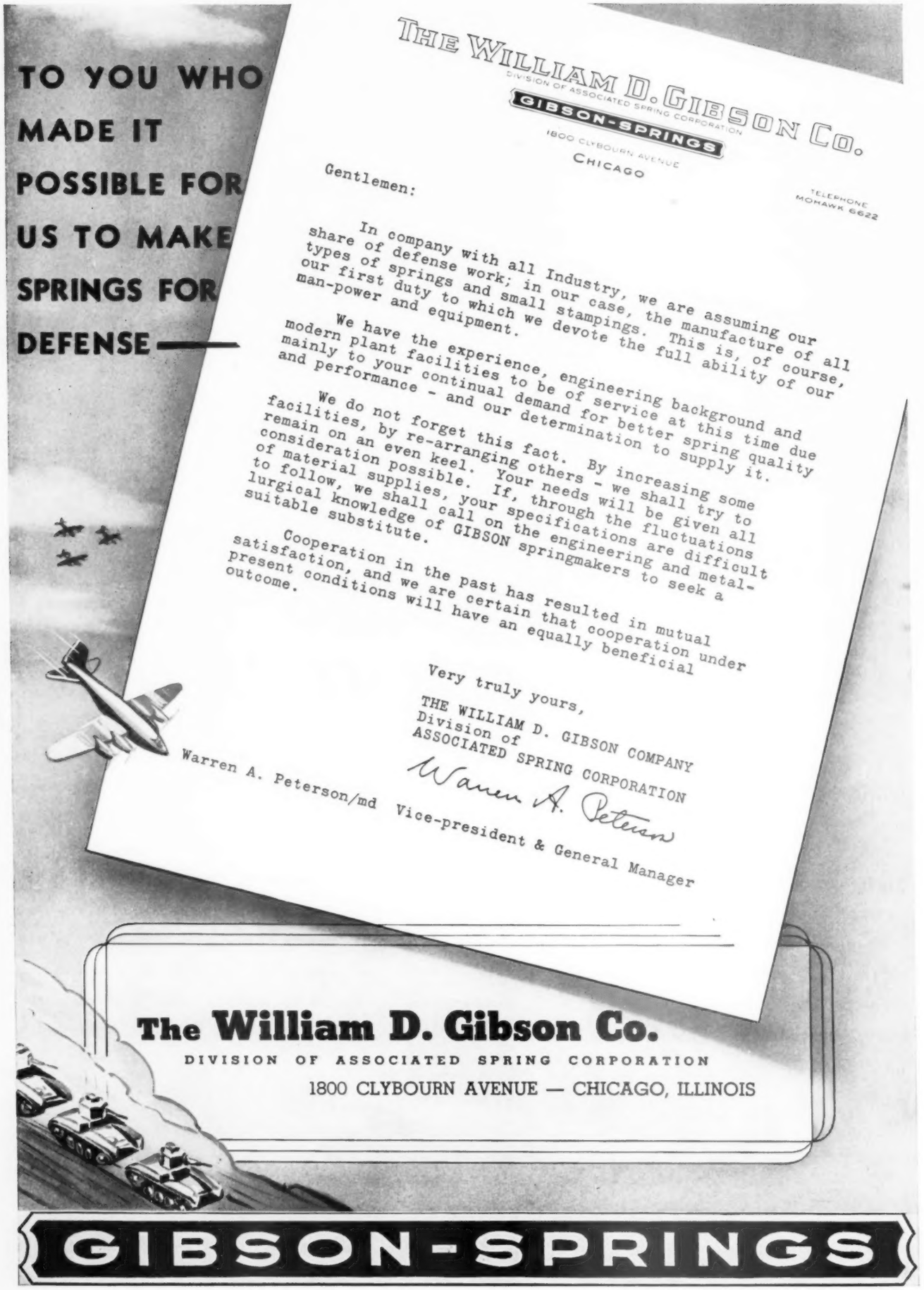
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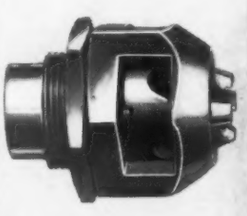
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TAPS • DIES • GAGES • TWIST DRILLS • REAMERS • SCREW PLATES • PIPE TOOLS

1. Right 5. Right 9. Wrong
2. Wrong 6. Wrong 10. Right
3. Right 7. Right 11. Right
4. Right 8. Right 12. Wrong

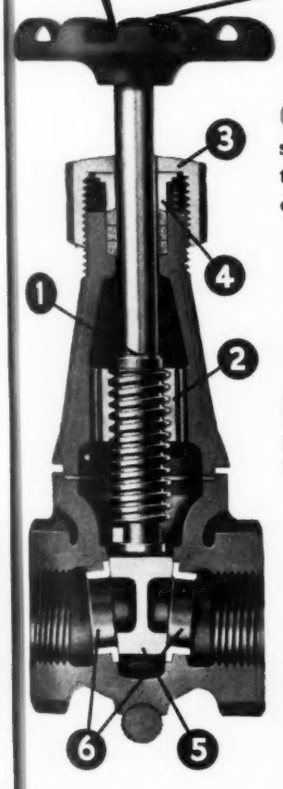
SAVE BRONZE by SUBSTITUTION

WHERE PRACTICAL, SPECIFY IRON BODY BRONZE MOUNTED SADDLE GATE VALVES ...IN PLACE OF BRONZE VALVES

Users of valves can help themselves as well as the war effort by substitution. The Walworth Figure 709 Bronze Mounted Iron Body Valve, for example, is made largely of iron. The seats and discs are of bronze, affording bronze-to-bronze contact. A bronze bushing cast in the bonnet provides bronze-to-bronze contact for the stem threads. Stuffing nut and gland are also of bronze, but the rest of the valve parts are iron. This Walworth Saddle Gate Valve can be used for many services where bronze valves have heretofore been specified. This valve is easy to take apart, clean, and put together.

Let's all cooperate by intelligent substitution, using less of the scarce metals wherever possible and prolonging the life of all valves by proper servicing at regular intervals.



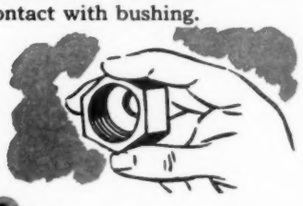




1 Stems are of high tensile strength wrought bronze. Stem threads have bronze-to-bronze contact with bushing.



2 Bushing is bronze and is made with drainage holes. Bushing is cast in the iron bonnet.



3 Bronze stuffing nut is rugged and of hexagonal construction for easy tightening.



4 Gland is wrought brass and can be lifted easily by means of a screw driver inserted under the shoulder.



5 Solid wedge-type disc is bronze, of slip-on, lock-on construction.



6 Bronze seat rings afford bronze-to-bronze contact with disc.

BUT THE REST OF THE VALVE IS IRON!

WALWORTH 1842 1942 VALVES AND FITTINGS 100TH ANNIVERSARY

A century ago Walworth first manufactured valves and fittings. Walworth has been manufacturing valves and fittings continuously ever since.

WALWORTH

WALWORTH COMPANY
60 EAST 42nd STREET, NEW YORK

VALVES
FITTINGS
and TOOLS
Backed by 100
Years' Service

DISTRIBUTORS IN PRINCIPAL
CENTERS THROUGHOUT THE WORLD

"THIS SHIP WAS NEVER BUILT!"



*The billion and a half man-hours lost last year through work accidents were sufficient to build: 44 battleships, 375 destroyers or 450 submarines.
*From figures issued by official sources

HEAT-FAG is directly responsible for many Accidents
STOP THIS COSTLY TOLL!

The finger of Accident is always beckoning to the fatigued, inalert worker. That's why Heat-Fag, ever-present when men sweat, takes such a staggering toll in man-hours lost to industry. For, body salt lost by sweating must be replaced or Heat-Fag sets in. Lowered efficiency, fatigue and discomfort follow . . . workers become careless . . . accidents happen . . . priceless man-hours are sacrificed.

AVOID HEAT-FAG--USE
MORTON'S
SALT TABLETS



QUICK DISSOLVING
(less than 30 seconds)
This is how a Morton Salt Tablet looks when magnified. Examine one—see how soft and porous it is inside. When swallowed whole — with a drink of water, they dissolve in less than 30 sec.

ORDER NOW!
Order from your distributor — or directly from this advertisement.

Case of 9000 Salt Tablets $2.60
Salt-Dextrose Tablets Case of 9000 $3.15



DISPENSERS
500-tablet size - - $3.25
1000-tablet size - - $4.00



FREE Sample Tube
Write — on your firm letterhead — for a pocket size sample tube of Morton's Salt Tablets and for the new folder — "Heat-Fag and Accidents Ride Together."

MORTON SALT CO., Chicago, Illinois

EVERYONE WHO SWEATS NEEDS SALT



F.O.B. philosophy of buying

G. L. DAVIS, P. A. for the Owens-Illinois Glass Company at Alton, Ill., set a precedent of some kind in purchasing circles when he was guest of honor at a recent dinner given by his associates in appreciation of his excellent record in procuring necessary supplies despite the difficulties of the war emergency and intricate priority procedures. His reputation in the company is expressed in the slogan, "He never fails." But recently that record was placed in jeopardy by a practical joker in the organization. How he came through, with government cooperation is thus described in the McKees Rocks *Gazette* of March 19th:

"Following a stretch of particularly bad weather at Alton, at a time when maintenance workers wanted to do some outside work, one of the men wrote out a formal requisition for '10 days of good weather for delivery starting next Monday, Mr. Davis' office routine functions perfectly even in his absence, and therefore the fact that he was away resulted in the requisition being sent through according to form.

"The order blank, properly filled in and approved, eventually found its way to the United States Weather Bureau in Washington. Proving that there is still a sense of humor in the midst of the war excitement, the order was acknowledged personally by F. W. Reichelderfer, Chief of the Bureau, and delivery was promised: 'No. 1 grade or best available.'

"Price quoted was 'Ten kind words for the Weather Bureau every month for eighteen months, remittance to be made to your friends and neighbors, with a broad smile.' The weather beginning on the specified Monday was *gorgeous.*"

• •

HEADLINE writers pick their vocabulary according to the space to be filled, and the results are sometimes startling. F.O.B. has followed with interest the excellent press notices on N.A.P.A. President Al Hayes' recent tour of the western associations. His double barrelled message to the buyers contained a report of the progress of war production and a spirited defense of the dollar-a-year executives who are making that progress possible. The journalists of Los Angeles, Salt Lake City, Portland, Fort Worth and Kansas City variously report the address as follows:

War Production Board Member Says Nation's Output in High Gear

Purchasing Agent's Chief Tells of Nation's Vast Preparations

Production Flood Growing

War Swing Amazes

Self-Appointed Critics on War Effort Attacked

Excessive Criticism of Government Called Danger

Raps War Effort Critics

But the prize effort of all appeared in the Portland *Oregonian,* which headed its story:

Carpers Hit as Inimical

• •

NEWS from the salvage front includes the announcement that Los Angeles County has turned in a collection of fifteen loving cups, one platter and a punch bowl, trophies won for the excellence of its exhibits at the state fairs and orange shows. The donation is listed under the general classification of "scrap metal." Wonder what those prizes were made of.

• •

ANOTHER way in which the war has completely changed our thinking is illustrated by the following memorandum issued by P. A. Van Vechten of the United Air Lines Transport Corp., Chicago, to all departments of the company. In the past, fixed calling hours for sales interviews have been generally criticized as autocratic and unfair. Today it is a measure that comes under the heading of "Cooperation with Salesmen," and

the salesmen themselves are invited to set the schedule. United's plan is outlined thus:

"Having in mind that it will be increasingly difficult for salesmen to call on us due to restrictions on tires, automobiles, etc., we want to cooperate with our salesmen in every way possible.

"We are going to endeavor to set up certain calling days, which calling days will be set up by the salesmen themselves as we are not going to attempt to set up visiting hours. This is not our intention. Rather, we are going to expand on the set-up similar to the one we have with Mr. Payson of the Graver-Dearborn Corporation in that he calls here in the afternoon each Tuesday and Friday and we want to make a set-up with any salesmen who want to operate under this particular arrangement.

"We have found in the past that a good many times we call a salesman out here at the request of an individual department and then due to a change in plans, the individual he is to see is not here and the trip has been in vain.

"We want the cooperation of our sales people even though they do not have anything to sell. They do have a service to sell and this is invaluable to us and we want to retain it on that basis.

"We are certain all departments will want to cooperate in every way possible and we ask your indulgence in order to cooperate with our sales people."

• •

THE "Three-Cent Purchasing Agent" who trustingly wrote to Washington for information and was sneeringly belittled for his pains, has at last come into his own, and the airplane commuters who used to dash down to the capital and set up offices in expensive hotel suites in order to get an answer in person are being forced to resort to the simpler mail procedure. WPB and OPA have decreed that henceforth interpretations and explanations must be put in writing, and to make the rule effective they go one step farther by saying that requests for such interpretations must also be in writing and submitted in advance of any contemplated trip to Washington. Which will generally make the trip unnecessary. Let's see—it was back in August, 1941, that PURCHASING called attention to this evil and suggested that the "three-cent" procedure was the proper and efficient answer. But to put the idea across, it needed not only a shortage of hotel rooms and traveling space, but a nasty mess of unofficial "understandings" that would have been avoided by using the mails and the written word.



In the interest of our present National Emergency, we offer the following suggestions:

1. Keep your wire rope using equipment in good condition. Sheaves should be of proper size, design, material — and free from corrugations. Keep all sheaves and idlers properly lubricated and in line. Avoid excessive fleet angles.

2. Keep your wire rope thoroughly and correctly lubricated.

3. Avoid kinks and sudden jerks . . . also, avoid cross-winding on drums, and reverse bends if possible.

4. Make sure your wire ropes operate with an adequate factor of safety. If there is not a proper ratio between the strength of the rope and the maximum load to be handled, the rope may be overstressed — a condition no rope can long survive.

5. Use wire rope of the correct size, construction, type and grade for your particular conditions.

The foregoing suggestions are necessarily brief. We shall be glad to give further particulars to any one interested.

A. LESCHEN & SONS ROPE CO.
WIRE ROPE MAKERS — ESTABLISHED 1857
5909 KENNERLY AVENUE — ST. LOUIS, MISSOURI, U. S. A.

NEW YORK . . . 90 West Street
CHICAGO . . 810 W. Washington Blvd.
DENVER . . . 1554 Wazee Street
SAN FRANCISCO . . 520 Fourth Street
PORTLAND . . 914 N. W. 14th Avenue
SEATTLE . . 3410 First Avenue South

HERCULES RED STRAND WIRE ROPE

YOU'LL GET *Action* HERE



« « On your SUB-CONTRACTS for FABRICATED METAL PARTS » »

● Lyon's war production staff—with more than a year's experience in expediting Prime Contracts and Sub-Contracts for fabricated sheet metal products—assures you quick and constructive action.

This staff—representing all major departments involved in the problem—meets every day. To make every minute count, our field men are specially trained to gather all pertinent facts to permit speedy planning action by the War Production Staff.

Back of this staff is one of the best equipped organizations in America for fabricating sheet metal. It operates big, modern plants covering an area of over half a million square feet. Completely equipped toolrooms assure prompt production and maintenance of all necessary dies and jigs.

So, if you have products or parts of products to make for Uncle Sam that require fabrication of No. 8 to No. 30 gauge sheet steel . . . let's go. Lyon has the facilities to make them for you in large quantities . . . they "know how" to produce them the way you want them and to have them ready when you need them. Write for "Craftsmen in National Defense."

LYON METAL PRODUCTS, INCORPORATED

General Offices: 3305 Madison Avenue, Aurora, Illinois

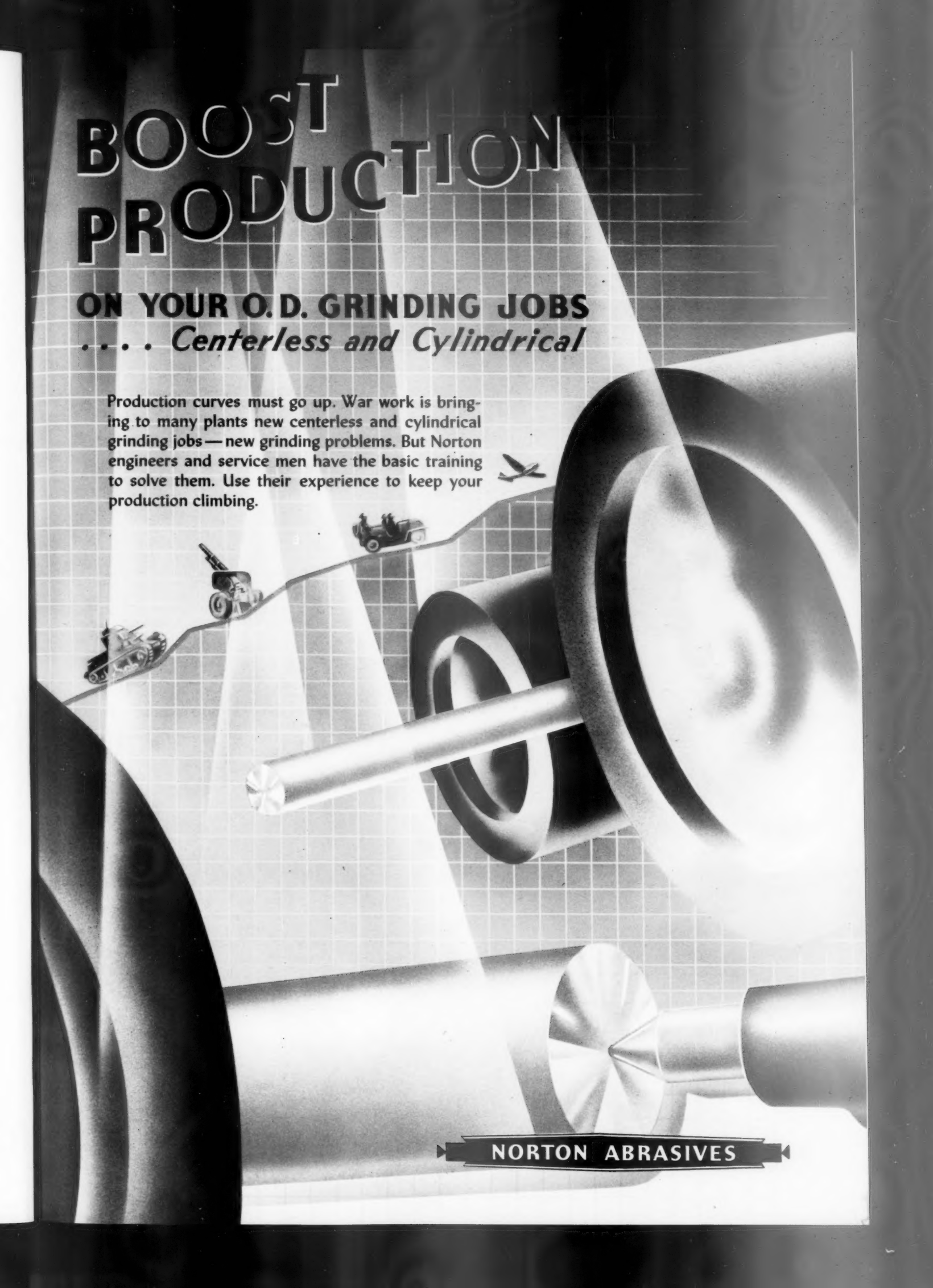
Sales and District Offices Manned by Experienced Engineers In All Principal Cities

GET ALL THE FACTS: This comprehensive brochure has been prepared to simplify the task of determining where Lyon facilities can be used to best advantage in accelerating armament production . . . A copy is yours for the asking.

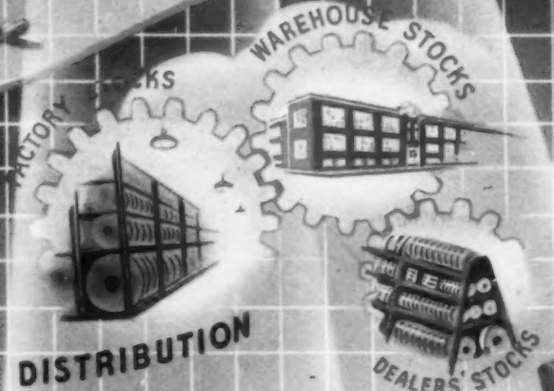


LYON METAL PRODUCTS, INCORPORATED

When writing Lyon Metal Products, Incorporated please mention Purchasing


BOOST PRODUCTION
ON YOUR O.D. GRINDING JOBS
. . . . Centerless and Cylindrical
Production curves must go up. War work is bringing to many plants new centerless and cylindrical grinding jobs — new grinding problems. But Norton engineers and service men have the basic training to solve them. Use their experience to keep your production climbing.
NORTON ABRASIVES

NORTON SERVICE *for* Victory Production



Local Distributors to Help You Out of the Tight Spots

Over 160 Norton distributors the country over are aiding the war industries —are ready with grinding wheels on their shelves to meet local needs. Backing them are Norton warehouses in five strategic industrial centers and the Worcester factory stock rooms with over 2,000,000 wheels in some 100,000 combinations.



Engineering Service for the New Grinding Jobs

New grinding problems arise every day as plants change speedily from regular products to war products. But 1800 distributors' representatives, coöperating with Norton field men and factory specialists, are ready to help find the answer. At their command is the wealth of data on grinding in the war industries compiled at Worcester—sent in by Norton field men everywhere for mutual use.



Research Facilities for the Tough Grinding Problems

The Norton research staff has over 50 trained scientists and technicians. A major duty today is to aid the Norton engineering force in solving many of the more difficult grinding problems that new war production jobs have brought. Extensive tests are carried out in both the field and the laboratories to determine the proper wheels and the correct grinding procedure.

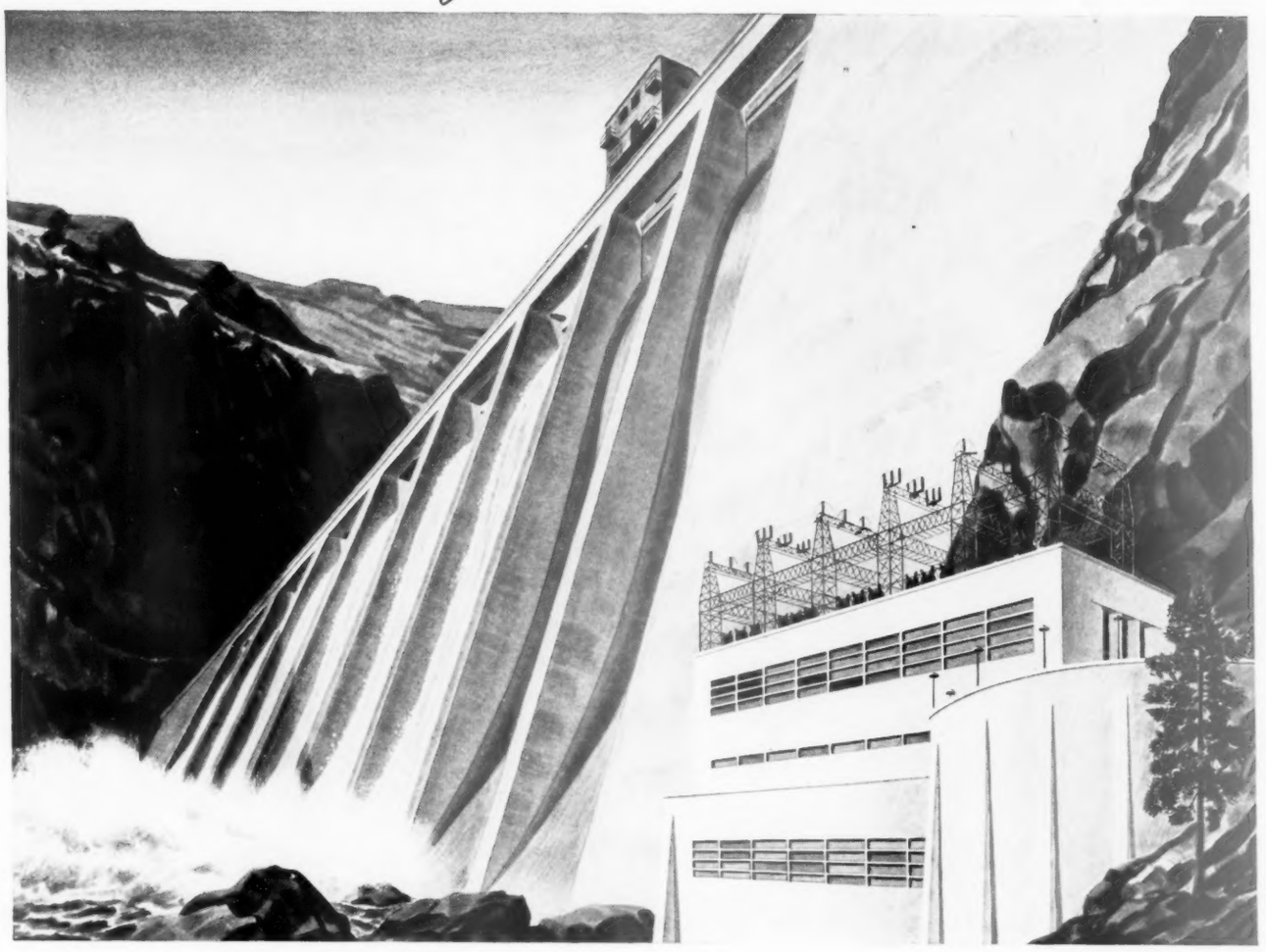


NORTON COMPANY
Worcester, Mass.

The Navy "E" flies over the Norton Plants

NORTON ABRASIVES

Looking ahead with Asbestos



For one answer to Tomorrow's problems in electrical control . . . look to K&M Ebonized Asbestos

As an insulating material for the mounting of electrical apparatus, K&M Ebonized Asbestos has already proved to be in a class by itself. In switchboards, panels and testing tables, it withstands shock, vibration and temperature change like no other known material. It is able to withstand high voltages without being punctured. The chances are that the tremendous dielectric strength and uniform density of this product are even now increasing the dependability of your own house lighting.

Due to the prior claims of war, K&M's Ebonized Asbestos cannot be available to everyone until peace returns. Meanwhile, our research laboratories, seeking to expand the usefulness of asbestos, would be glad to study any problems of yours, with the hope that this strange mineral may prove to be the answer.

* * *

Nature made asbestos;
Keasbey & Mattison, America's asbestos pioneer, has made it serve mankind . . . since 1873.

KEASBEY & MATTISON
COMPANY, AMBLER, PENNSYLVANIA



Makers of

asbestos-cement shingles and wallboards; asbestos and magnesia insulations for pipes, boilers, furnaces; asbestos textiles; asbestos electrical materials; asbestos paper and millboard; asbestos marine insulations; asbestos acoustical material; asbestos packings; asbestos corrugated sheathing and flat lumbers; asbestos-cement pipe for water mains.

When writing Keasbey & Mattison Company please mention Purchasing

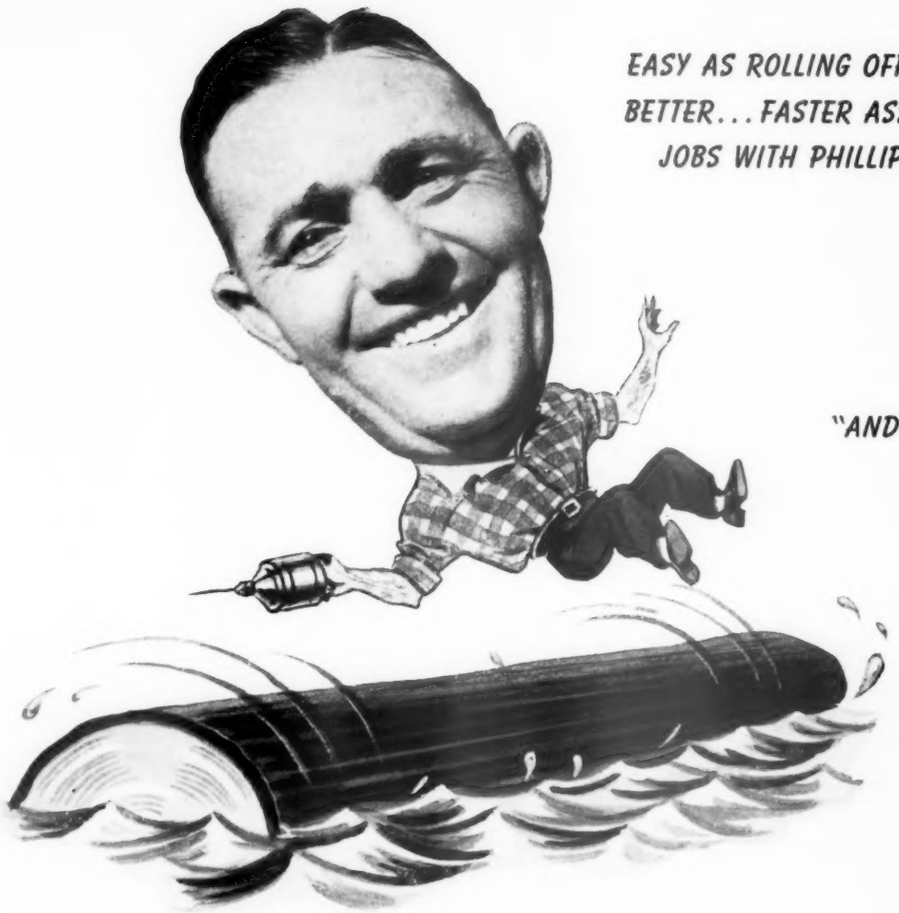


Wherever screws are used—Phillips Recessed Head, Clutch Head, or Slotted Head—APEX Power Bits and Hand Drivers are a direct contribution to speeding up War Production.

1. The tool steel used is the finest for the purpose. It is specially heat-treated to give toughness and long life to every APEX Bit.
2. APEX Bits and Drivers are engineered to fit the screw accurately—less wear and tear on the Bits and fewer Bits used per thousands of screws driven.
3. Standardizing on APEX Power Bits and Drivers makes replacements quickly available, with fewer items to carry in stock, the elimination of "specials," and more flexible production operations. APEX Power Bits—all three types—are made to fit practically all types of electric, air and spiral drivers.
4. APEX Power Bits conserve vitally needed materials. APEX-Phillips Bits can be reconditioned time after time as they wear. The Bit is shortened only about $1/8''$ on reconditioning and is equal in service to a new Bit.

You should have these three Guides to Power Bits and Drivers for ready reference. Each Bit is illustrated, with part number, dimensions and the power tool it fits. They will simplify your purchasing. *Write today.*

The APEX Machine & Tool Co.
Dayton, Ohio



EASY AS ROLLING OFF A LOG...
BETTER... FASTER ASSEMBLY
JOBS WITH PHILLIPS SCREWS

"AND DON'T FORGET!
PHILLIPS SCREWS
COST LESS TO USE"



One Hand Driving • Power Tools • Tighter Assembly = 50% Less Assembly Time with Phillips Screws

B. P. (Before Phillips). Slow-driving slotted screws required two hands to aim the screw and steady the work — and still accidents happened, causing plenty of mangled fingers or scars in the work. Always something going wrong — crooked screws — heads splitting — burrs to remove — loose assemblies. Thank goodness those days are gone forever!

A. P. (After Phillips). Faster-driving Phillips Recessed Head Screws need only one hand . . . the other hand is free for support. No fumbled screws — straight, effortless driving. Even when assembling parts already finished — like enameled, painted or other easily-scratched surfaces — power driving is safe, because there's no danger of driver slippage. And screws can be set up tight without heads splitting or raising burrs.

Your assembly crew will find it "easy as rolling off a log" to produce better work . . . in half the time . . . at a 50% cost saving with Phillips Screws.

For facts and screws write any firm listed below.



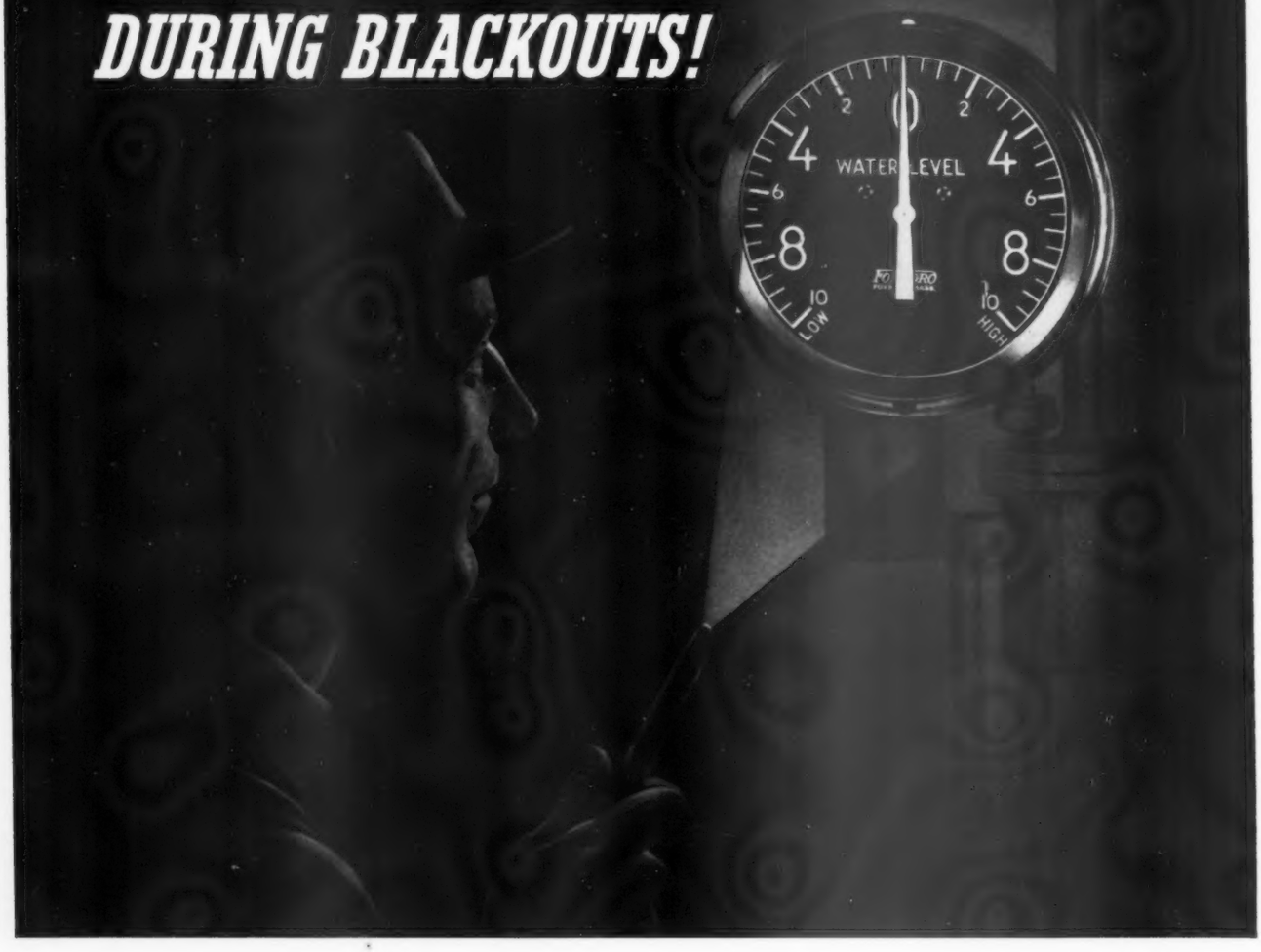
PHILLIPS RECESSED HEAD SCREWS
GIVE YOU 2 for 1 (SPEED AT LOWER COST)

WOOD SCREWS • MACHINE SCREWS • SHEET METAL SCREWS • STOVE BOLTS • SPECIAL THREAD-CUTTING SCREWS • SCREWS WITH LOCK WASHERS

American Screw Co., Providence, R. I.
The Bristol Co., Waterbury, Conn.
Central Screw Co., Chicago, Ill.
Chandler Products Corp., Cleveland, Ohio
Continental Screw Co., New Bedford, Mass.
The Corbin Screw Corp., New Britain, Conn.
International Screw Co., Detroit, Mich.
The Lamson & Sessions Co., Cleveland, Ohio
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N. H.
The Charles Parker Co., Meriden, Conn.
Parker-Kalon Corp., New York, N. Y.
Pawtucket Screw Co., Pawtucket, R. I.
Pheoll Manufacturing Co., Chicago, Ill.
Russell, Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
Scovill Manufacturing Co., Waterbury, Conn.
Shakeproof Inc., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.
Whitney Screw Corp., Nashua, N. H.

When writing Phillips Licensees please mention Purchasing

For Safer Boiler Operation *DURING BLACKOUTS!*



Get your water level readings down where you can read them!

A boiler room has too many horse-power roaming around, to take any chance that they may run wild under cover of an air-raid blackout. For safety, you need a quick, positive way to check up boiler water level at a glance, instead of straining to see a gauge glass 5 to 10 feet overhead.

Bring 'Em Down to Eye-Level

The easy addition of a Foxboro Boiler Water Level Indicator puts these important readings right before your eyes. Without interference with your regular gauge glass, this instrument can be installed in any convenient spot, at "head-height" from the floor. Its clean-cut dial face shows up sharply without any other light than an Official Blackout Flashlight!

Permanent Convenience

Blackout or no blackout, Foxboro Boiler Water Indicators insure surer, safer boiler operation because they practically can't be overlooked or mis-read. Simply designed, ruggedly constructed, they're good for years of service without maintenance. Made for pressures up to 800 lbs. – other models to 5000 lbs.

Get Ready **NOW**

Don't let blackouts catch you unprepared. Write today for Bulletin B-319, "Foxboro Boiler Water Level Indicators". **The Foxboro Company, 178 Neponset Ave., Foxboro, Mass., U. S. A.** Branches in principal cities of United States and Canada.

FOXBORO
Reg. U. S. Pat. Off.

BOILER WATER LEVEL INDICATORS

When writing The Foxboro Company please mention Purchasing



MIDWEST

THE COMPLETE LINE OF Welding Fittings

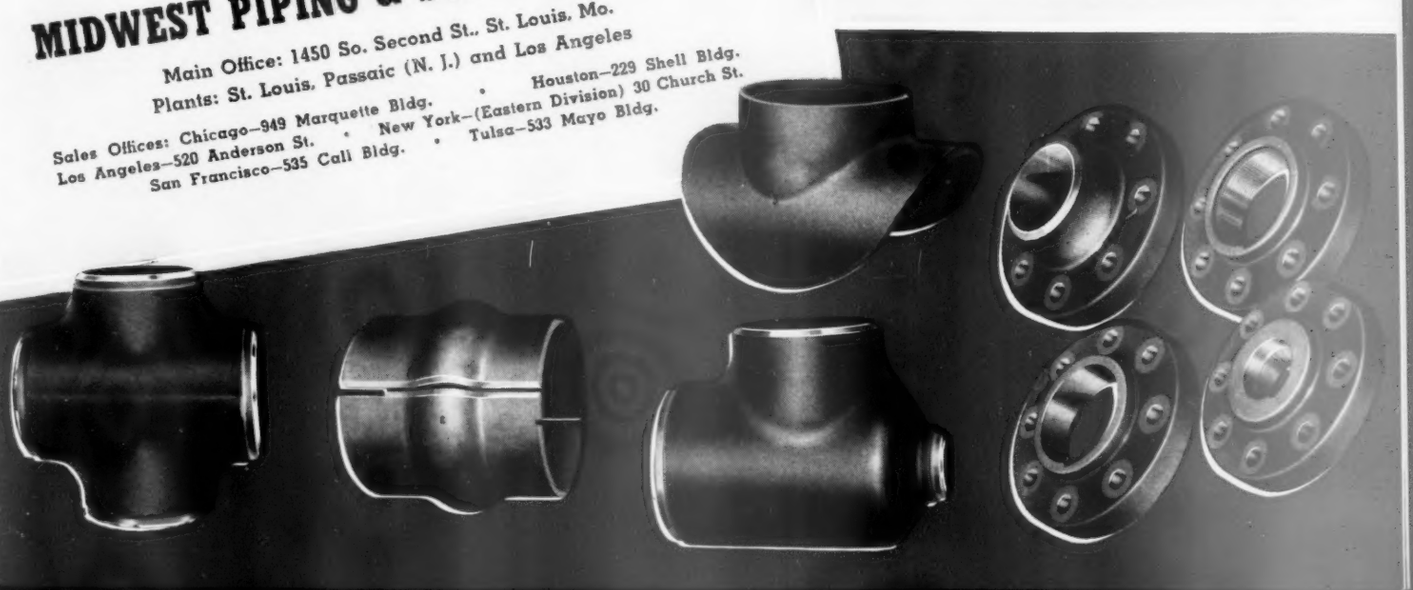
Many users of welded piping are finding it advantageous to standardize upon Midwest Welding Fittings. Important among the reasons for this preference is the fact that only one source of supply is necessary to meet all their needs. . . . Midwest has the most complete line of welding fittings.

Midwest was the first manufacturer to recognize the need for many of the fittings illustrated here. Reducing Elbows, Saddles, Sleeves, "Long Tangent" Elbows and Shaped Nipples are among the fittings developed by Midwest and first offered to the trade by Midwest.

The design and method of manufacture of Midwest Welding Fittings offer the user definite advantages . . . such as exceptional dimensional accuracy. (See Bulletin WF-41 for details.)

MIDWEST PIPING & SUPPLY CO., Inc.

Main Office: 1450 So. Second St., St. Louis, Mo.
Plants: St. Louis, Passaic (N. J.) and Los Angeles
Sales Offices: Chicago—949 Marquette Bldg. • Houston—229 Shell Bldg.
Los Angeles—520 Anderson St. • New York—(Eastern Division) 30 Church St.
San Francisco—535 Call Bldg. • Tulsa—533 Mayo Bldg.





With the winning of this War the dominant thought in the mind of every thinking AMERICAN, the Winter Brothers Company would again assure you that every effort is being put forth to see that you get the taps to meet your threading needs — Quality Taps, that you may better do your share.

Winter Brothers
COMPANY
Wrentham, Massachusetts, U. S. A.

IF JUST ANY GOOD MOTOR WILL DO

Please Don't Come to Us

If your requirements go no further than good standard motors, we say frankly, Welco Motors are not for you.

There were days not so long ago when our company was glad to fill your standard orders. There may be a time soon again when we can work with you on this type of business — we sincerely hope so.

Right now, we feel that our most valuable contribution can be made on custom torque motor work. Our engineering experience and our highly specialized production equipment are tuned to the task of making a specific motor to do a specific job. If your motor problem is just a little bit tougher than ordinary, if you have need for custom service, give us the facts. We'll be glad to lend a hand.

THE B. A. WESCHE ELECTRIC COMPANY

1628 Vine Street Cincinnati, Ohio

TORQUE WELCO MOTORS

When writing The B. A. Wesche Electric Company please mention Purchasing

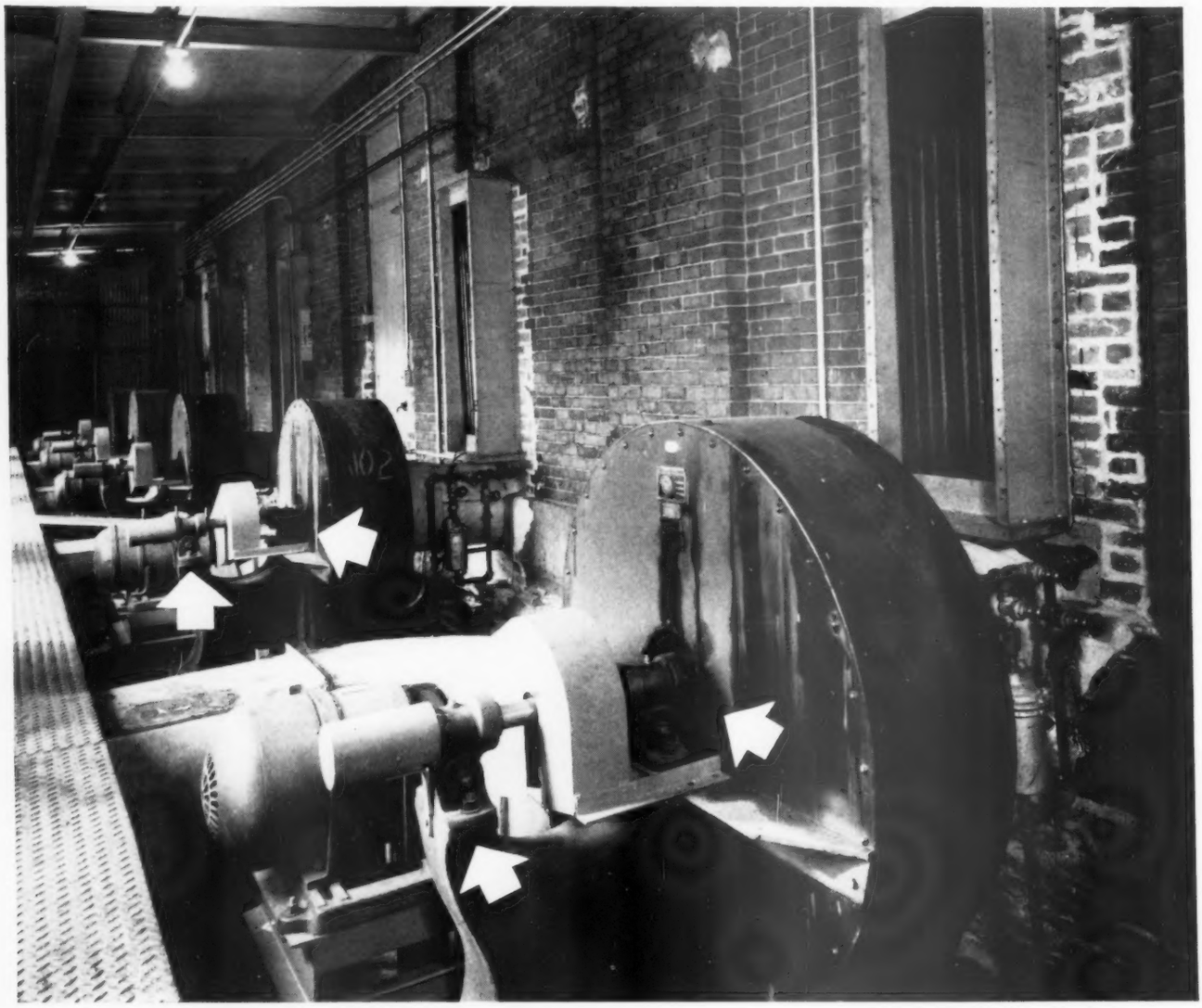
Pulling 42,000 cu. ft./min. ...24 Hours a Day!

Where gossamer-like filaments of Fiberglas are gathered into yarn staple, fans driven at 1,100 r.p.m. must exhaust 42,000 cfm of air, mixed with steam at 400°F., from the gathering drums. Fan bearings *must* be dependable!

In the Owens-Corning Fiberglas Corp. plant, Fafnir Knee-Type Ball Bearing Fan Boxes on the six gathering fans are operating twenty-four hours a day under these adverse conditions . . . and delivering friction-free performance, without pampering!

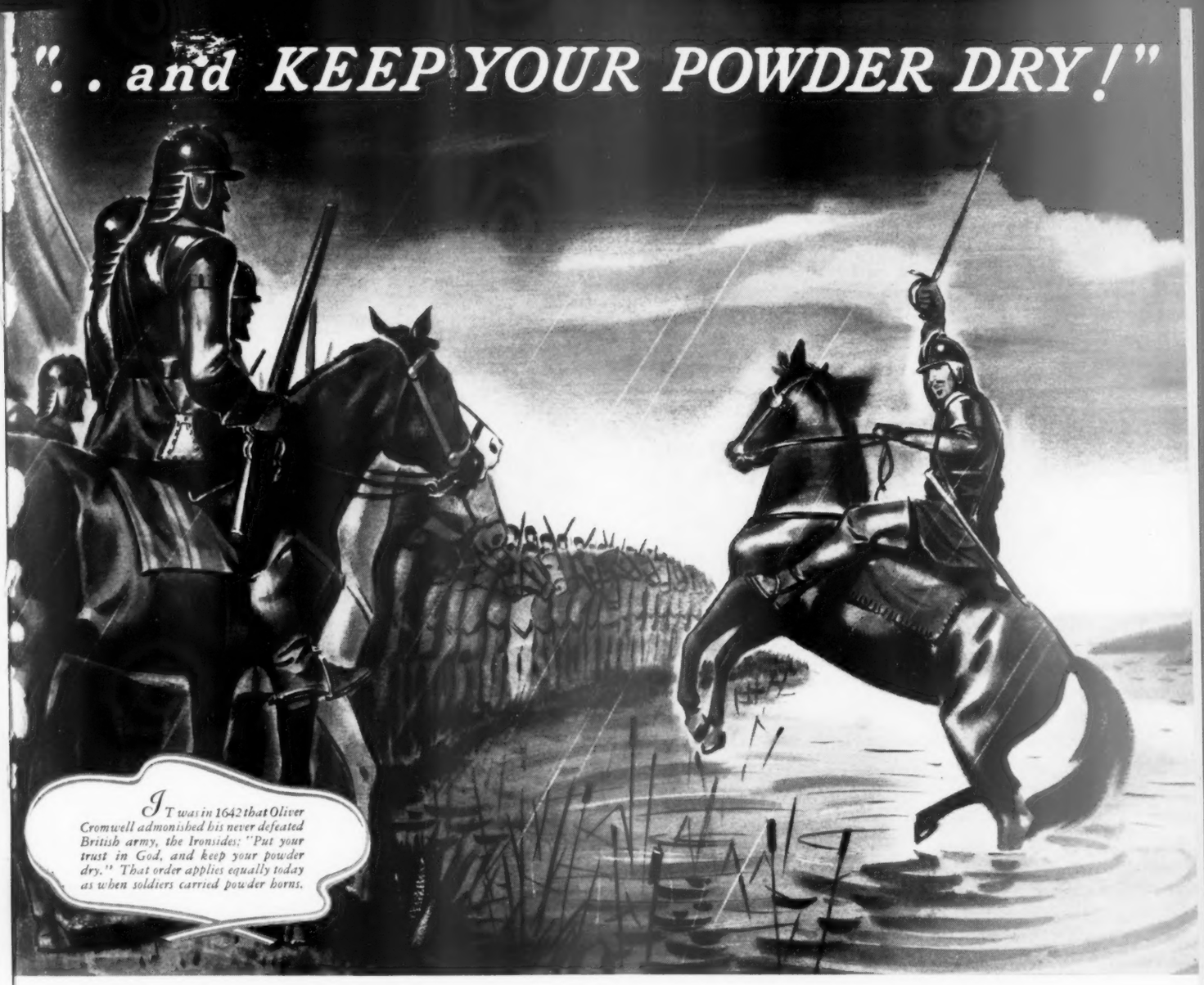
Even if your own machinery or equipment makes no unusual demands on bearings, you may wish to further reduce *its* power-loss from friction, and *your* time-loss for maintenance. No other ball bearing units make this turning point to economy so easy to attain as Fafnirs, designed for the job! Fafnirs alone offer the long-life Balanced Design . . . deeper races, larger balls. The complete Fafnir line includes every type and size of radial and thrust bearing, precision bearing, self-aligning bearing, sealed bearing, and housed transmission unit. The Fafnir Bearing Company, New Britain, Connecticut.

FAFNIR
Ball Bearings
THE BALANCED LINE — FOR
ORDNANCE, AIRCRAFT AND INDUSTRIAL MACHINERY



When writing The Fafnir Bearing Company please mention Purchasing

". . and KEEP YOUR POWDER DRY!"



IT was in 1642 that Oliver Cromwell admonished his never defeated British army, the Ironsides: "Put your trust in God, and keep your powder dry." That order applies equally today as when soldiers carried powder horns.

. . . FIBREEN is Keeping America's "Powder" Dry on Land and at Sea—

Powder, today, means shells, grenades, and bombs—and also planes, tanks, food, clothing, radios, range finders, surgical equipment, medicines and chemicals, electrical supplies; in fact, all the complicated equipment of modern warfare.

Damage to any of this material while in storage or in transit, while exposed on shipping platforms or yards, at docks or at supply dumps, can be just as disastrous, today, as water in the powder horns of Cromwell's musket men in 1642.

FIBREEN is doing its part in providing safe packing and protection for goods of war. It's tough and strong. It's waterproof. Used as a liner or wrapping, it furnishes vital protection, guarding against damage by rain, dirt, sea water, salt air, and long exposure to all kinds of weather from extreme heat to freezing cold.

FIBREEN is a pliable, rugged paper—reenforced by wire-tough, closely spaced fibres running crosswise and lengthwise — embedded in two layers of asphalt, between two layers of strong kraft. It's inexpensive—an effective replacement for packing fabrics and materials no longer available.

FIBREEN is available to those in essential industries. If your product is in this class, write explaining what you make, and how it is now packed. We'll try to help you.

THE SISALKRAFT CO.

Manufacturers of Sisalkraft, Fibreen, Sisal-X, Sisaltape and Copper-Armored Sisalkraft.

205 W. WACKER DRIVE · CHICAGO, ILL.
NEW YORK SAN FRANCISCO LONDON SYDNEY

In Canada Write to Alexander Murray & Co., Limited, at Montreal · Toronto · Halifax · Saint John · Winnipeg · Vancouver

FIBREEN
EFFECTIVE *Protection* IN TRANSIT—
IN STORAGE—FOR EMERGENCY USES



SERVING INDUSTRY, CONSTRUCTION AND AGRICULTURE THROUGHOUT THE WORLD

AN ELECTRICAL WHOLESALER HELPS SPEED WAR PRODUCTION



WESCO met 3-day deadline for 18 products

Steel Plant Started Production 60 Days Quicker; Saved 74 Paper Transactions.

A large Southwestern steel plant under construction suddenly needed $14,000 worth of priority products. Altogether, 18 items from 6 manufacturers were required. A hurry call to the local WESCO House got fast action. WESCO delivered the complete order in 3 days. Deliveries by the manufacturers involved, would have taken a minimum of 60 days longer—*in some cases 9 months.*

Important, from an internal cost point of view, WESCO saved the customer the burdensome detail of handling 6 orders, 6 acknowledgments, 20 follow-ups, 12 shipments, 12 bills of lading, 12 invoices and 6 checks to issue.

Today's war plant building calls for hair-trigger speed in assembling and delivering material to meet crucial deadlines. WESCO speeds war production because each of its 79 Houses stocks great variety and quantities of apparatus and supplies and knows how to get things done for customers. Today that efficient service steps up war production. Tomorrow it will speed the reconstruction of business.

WESCO SPEEDS WAR PRODUCTION

* A $50,000 machine that would release 20 men for war production work stood idle for want of wire. Best delivery from manufacturers was 5 to 8 weeks. WESCO delivered the wire the following day.
* WESCO saved a 37-days' delay in a Naval Ammunition Depot by providing from stock, with engineers' approval, a type of transformer equally as efficient as a non-available type specified.

WESCO SERVES BUSINESS

* By maintaining perpetual inventory stock records.
* By extending credit to help finance jobs.
* By assembling all parts of an order in one shipment.

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PURCHASING PREVIEWS

From the Washington office of

PURCHASING

National Press Building
Washington, D. C.

May 2, 1942

For Purchasing Executives:

WAR PRODUCTION SCHEDULE—Progress of the national production schedule for the materials of war is regarded as eminently satisfactory. This does not mean that present output represents the maximum effort, but that the time table tentatively adopted in January has been met. It will gather momentum as new plants come into operation and as the process of conversion to war production continues, to a rate considerably above the present. The important thing is that the process is going forward as planned, and the quotas which seemed fantastic to Axis commentators four months ago are being achieved with something to spare.

Another heartening factor is the high level of national morale, among manufacturers and labor circles, as well as among civilian consumers. The dislocations attendant upon this huge program are being taken in stride, and the unity of purpose and spirit which has marked the nation ever since Pearl Harbor is more than ever in evidence.

* * * *

GOVERNMENT PURCHASING—Within the government organization, the charges in purchasing procedure and personnel in connection with the armed forces and Lend-Lease activities, are bearing fruit, and a high standard of efficiency is reported. Purchases went well over the rate of $100,000,000 per day last month, and will reach the objective of 50% above that figure before the end of the year.

Notable innovations in purchasing policy, borrowed from civilian industry, include an extension of buying on negotiated contracts, and a new receptiveness to the consideration of alternate bids on materials which deviate somewhat from established specifications. This does not imply that quality standards are being relaxed, but that the slow processes which have traditionally characterized any revision of existing standards in respect to government requirements have been short-circuited, to take advantage of civilian knowledge and progress in materials and manufacturing without the usual delay. No single factor has contributed more to the speed-up of government procurement than this common-sense policy, and permanent benefits will accrue to government procurement from this expedient.

In the activities related to purchasing, the salvage program seems to have bogged down slightly, and the situation with regard to metal and rubber scrap is still acute. The explanation of this seems to be that requirements are expanding faster than the salvage program itself, rather than implying any shortcomings in that program.

ANTI-INFLATION DRIVE—With war production proceeding satisfactorily, the chief concern now centers on price levels. The word "inflation" has been studiously avoided in the President's messages, but the implications of "cost of living" and "upward spiral" are clear to business men. Despite the energetic efforts of the Office of Price Administration, within its powers, to freeze prices at or close to current levels, the cost of living has risen far enough and rapidly enough to give genuine alarm. Justification of the President's phraseology is based on the contention that it has not yet amounted to inflationary status and that it can be nipped in the bud before that stage arrives.

Mechanics of the new effort include a direct ceiling on the retail price level, where it affects the consumer in thousands of commodities used in daily living. More fundamental is the attack on inflationary causes rather than effects.

Specifically this means a firm attitude and a curb on two powerful sectors of national life—labor and agriculture. Officially, the administration has hesitated to touch either of these two elements in its control legislation. On the subject of wages, Mr. Henderson has long and consistently been on record with the opinion that if controls were exercised on prices and profits, an automatic system of checks and balances would take care of the wage situation. But the experience of the past year shows wages rising disproportionately higher than living costs, and constituting a threat to a balanced economy.

In a radio address a week or so before the President's message to Congress, Mr. Henderson cited wages as one of the factors to be controlled, and the President's message contained the forthright statement: "I believe that stabilizing the cost of living will mean that wages in general can and should be kept at existing scales." The machinery by which this is to be accomplished is the War Labor Board—in other words, it is to be a matter of policy.

The difficulties in the way of making such a policy effective are enormous, without the support and direction of positive legislation, a detail which is still avoided in this program, and the situation is not helped by the apparent intention to take up the "squeeze" between rising costs and maximum selling levels out of profit margins. The retail margin will be cut about in half, likewise the wholesaler's margin; these cuts are expected to be "absorbed" through greater efficiency of operation, limitation of delivery services, packaging costs, etc. The squeeze on the manufacturer is unpredictable, but is expected to be heavier, and government subsidies may be invoked to maintain essential production.

In respect to agricultural prices, this is one of the two points on which new legislation will be required, to revise the faulty formula governing parity prices. The issue presented in this case is a clear cut decision between group interests and national interests.

The other point requiring new legislation, according to the President, is the 1942 tax program. That it will be a drastic program, there can be no doubt. It will bear heavily on profits from industrial enterprises and on the higher income brackets. It can also be used to implement the wage situation to some extent if "real wages" are to be considered as is indicated by the emphasis on living costs and the necessity of accepting a lower over-all standard of living for the duration of the war.

—THE EDITORS

V SHIPMENTS "Bound-to-get-there" FASTER



GUN TURRETS FOR FLYING FORTRESSES SHIPPED IN ACME STEEL BAND-BRACED CARS

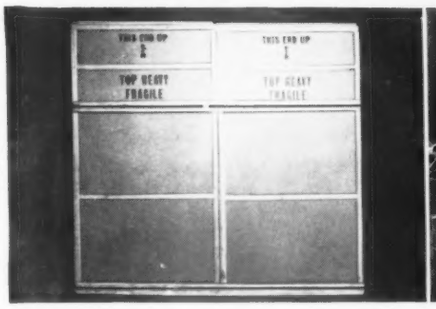
Among the bulkier Victory products made "Bound to Get There" by Acme Steel Bands are these machine gun turrets for the mighty flying fortresses. These turrets, after fabrication, are shipped half-way across the continent where they are assembled into the bombers. Damage in transit must be avoided because the turrets are costly and replacement shipments would, of course, involve the loss of precious time which is vital to the nation's security.

The fast, safe and economical shipment of this Victory product demanded careful study of the packing and bracing problem. And as for thousands of other applications . . . both in war and in peace . . . Acme Unit-Load Bands were chosen to assure quick delivery and absolute protection. Time is saved in stowing and in the unloading operation. And to prepare the packages for their important places on the assembly lines, it is necessary only to snip the bands.

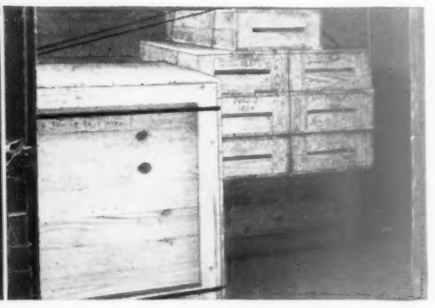
There is an Acme Process to meet the packing and shipping requirements of your Victory products. Mail the coupon below for complete information.



"Bigger and more deadly," a new eagle . . . the four-engined Bomber . . . takes to the sky.



Six upper turrets are loaded in the opposite end of the same car. Both photographs were taken at destination after a 2,500-mile rail trip. With Acme Steel Band protection, the ladings are assured of safe arrival.



Car door view of one end which contains seven lower machine gun turrets. This unit weighs about 6,500 pounds and is braced with Acme Unit-Load Bands. Note unique bracing method of the small boxes at the right.

ARMY KEEPS WARM IN COMFORTERS SHIPPED IN *Steelstrapped* CARTONS



Comforters in large quantities for the armed forces are a necessity for the Victory program. In the plant above, production has already reached 1,000 daily — with demands being made for even greater output.

By using Acme Steelstrap, the packing room has been able to keep pace with stepped-up production. Although light in weight, comforters are bulky to pack as will be noticed from the cartons at the right. After the contents are compressed, flaps are sealed and the packages are given complete protection with Acme Steelstrap.

DEFENSE BONDS GO OVER HEAVY AT ACME STEEL

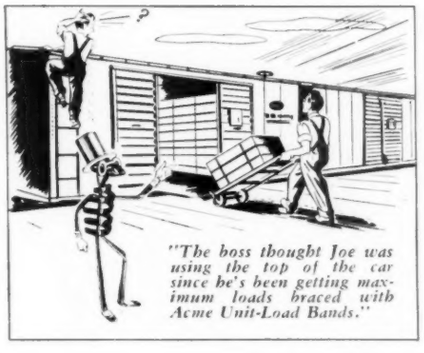


A big majority . . . more than 70% . . . of Acme employees are buying Defense Bonds on the payroll allotment plan. As a result their dollars are doing double duty—assuring safety for their country today and providing security for themselves in the years to come. Savings, of course, are right in the blood of Acme employees. For years they've been making products that have made important savings to shippers in virtually every industry.

SHIPPERS GET HELPFUL HINTS FROM NEW ACME PUBLICATION



Acme Process News is a new publication distributed at regular intervals by Acme Steel Company. Illustrated, the current issue shows ways in which shipments are being speeded up . . . how damage claims are reduced and shipping and handling costs lowered. A copy can be obtained by mailing the coupon below.



"The boss thought Joe was using the top of the car since he's been getting maximum loads braced with Acme Unit-Load Bands."

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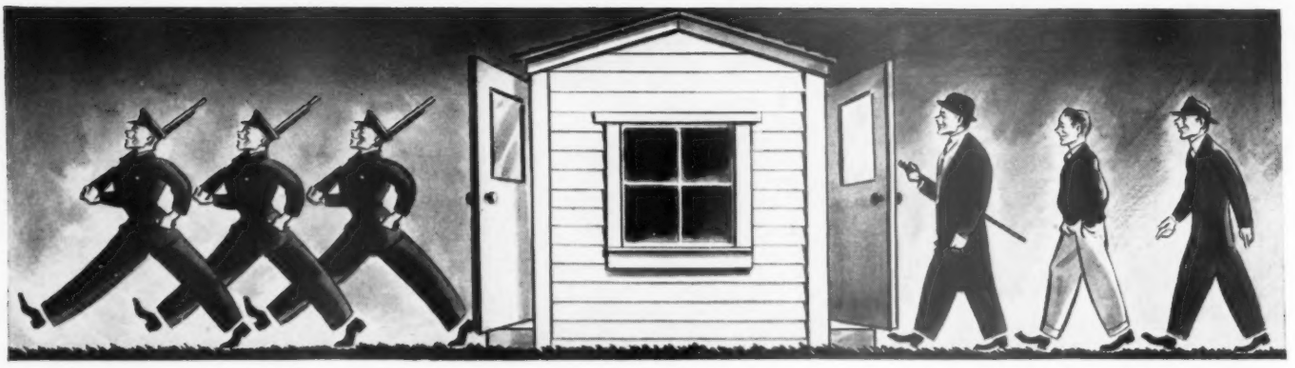
☐ Send complete information on fast, safe and economical packing and shipping of Victory products.

☐ Mail a copy of Acme Process News.

Name .....

Company .....

Address .....



Quick Changeovers for War Work

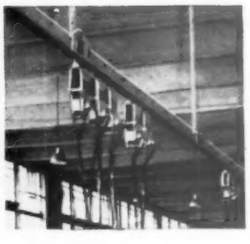
CALL FOR HIGHLY FLEXIBLE WIRING SYSTEMS

For every quick changeover you're making today, there'll be other changeovers tomorrow. New plants as well as old may be called on to make fast changes in production to meet the nation's needs.

So, whether you're modernizing or building, make sure your power and light circuits are planned to facilitate fast changes in the arrangement of machines. Ask your GRAYBAR representative to help you or your contractor choose the type of electrical distribution system that's most flexible for meeting both present and future needs.



● **BullDog BUStribution Duct** . . . a bus-bar type power source for industrial areas, made in standardized sections, with "plug-in" devices serving branch circuits or individual machines. Permits changeovers without wasted materials or lost time.



● **BullDog Industrial Trol-E-Duct** . . . for production lines or assembly benches; powers portable tools from mobile take-off "trolleys" supported by the duct. Gives instant flexibility to plant operations without extra work for the maintenance department.

● **BullDog Universal Trol-E-Duct** . . . makes plant lighting fully flexible, as individual lighting units can instantly be shifted as the work requires with no wiring changes or delay. Twist-out plugs can be used anywhere along the line.

● **N.E.P. Surface Raceways** . . . for factory offices and other areas requiring easily changed wiring to business machines, desk lamps, etc. Made in a variety of types, including metal molding, Xtensionduct, and plug-in strip.

● Also rigid conduit, thin-wall conduit, flexible metallic cable, building wire, wiring devices for every industrial need . . . all distributed by GRAYBAR in accordance with current priority regulations. Just call your GRAYBAR representative.

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GraybaR

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PURCHASING

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HUGHES PRINTING CO.
EAST STROUDSBURG, PA.

61% of all Safety Directors Say— "Use Preformed Wire Rope to Reduce Accidents"

EXCERPT FROM PAGE 62, Dec. 1941 "NATIONAL SAFETY NEWS"

Preformed Rope Reduces Injuries

Preformed rope, according to returns from the questionnaire, has been adopted by many companies in order to avoid barbs caused by ends of broken wires. Preformed rope does this in two ways: first, the wire ends do not stick out from the rope when the wire breaks, but continue to lie in position against the rope body; and second, the high resistance of preformed rope to fatigue results in fewer wire breaks developing in a working rope, all other things being equal.

"Buy only preformed rope," cautions the safety engineer of a large automobile company, "since it is safer and cheaper in the long run." The safety officer of a federal government agency says, "There is far more likelihood of workers receiving puncture injuries while handling non-preformed rope than from the preformed type." A metal mine reports that their injury rate and compensation costs due to hand injuries from handling slusher ropes dropped to almost zero when they changed to preformed rope, and two other mines corroborated this report from their own experience. A rubber company says, "We definitely favor preformed rope." Other companies report similar experience.

AMERICAN CABLE

TRU·LAY *Preformed*

When asked, in a survey, how to reduce accidents to workmen handling wire rope, 61% of all Safety Directors said: *"Use Preformed Wire Rope."* American Cable **TRU-LAY PREFORMED WIRE ROPE** means steadier machine operation and greater production. All American Cable ropes made of Improved Plow Steel are identified by the Emerald Strand.

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ESSENTIAL PRODUCTS . . . AMERICAN CABLE Wire Rope, TRU-STOP Emergency Brakes, TRU-LAY Control Cables, AMERICAN Chain, WEED Tire Chains, ACCO Malleable Iron Castings, CAMPBELL Cutting Machines, FORD Hoists and Trolleys, HAZARD Wire Rope, Yacht Rigging, Aircraft Control Cables, MANLEY Auto Service Equipment, OWEN Springs, PAGE Fence, Shaped Wire, Welding Wire, READING-PRATT & CADY Valves, READING Electric Steel Castings, WRIGHT Hoists, Cranes, Presses. *In Business for Your Safety*

When writing American Cable Division please mention Purchasing



NAVY SEEKS ALTERNATE BIDS

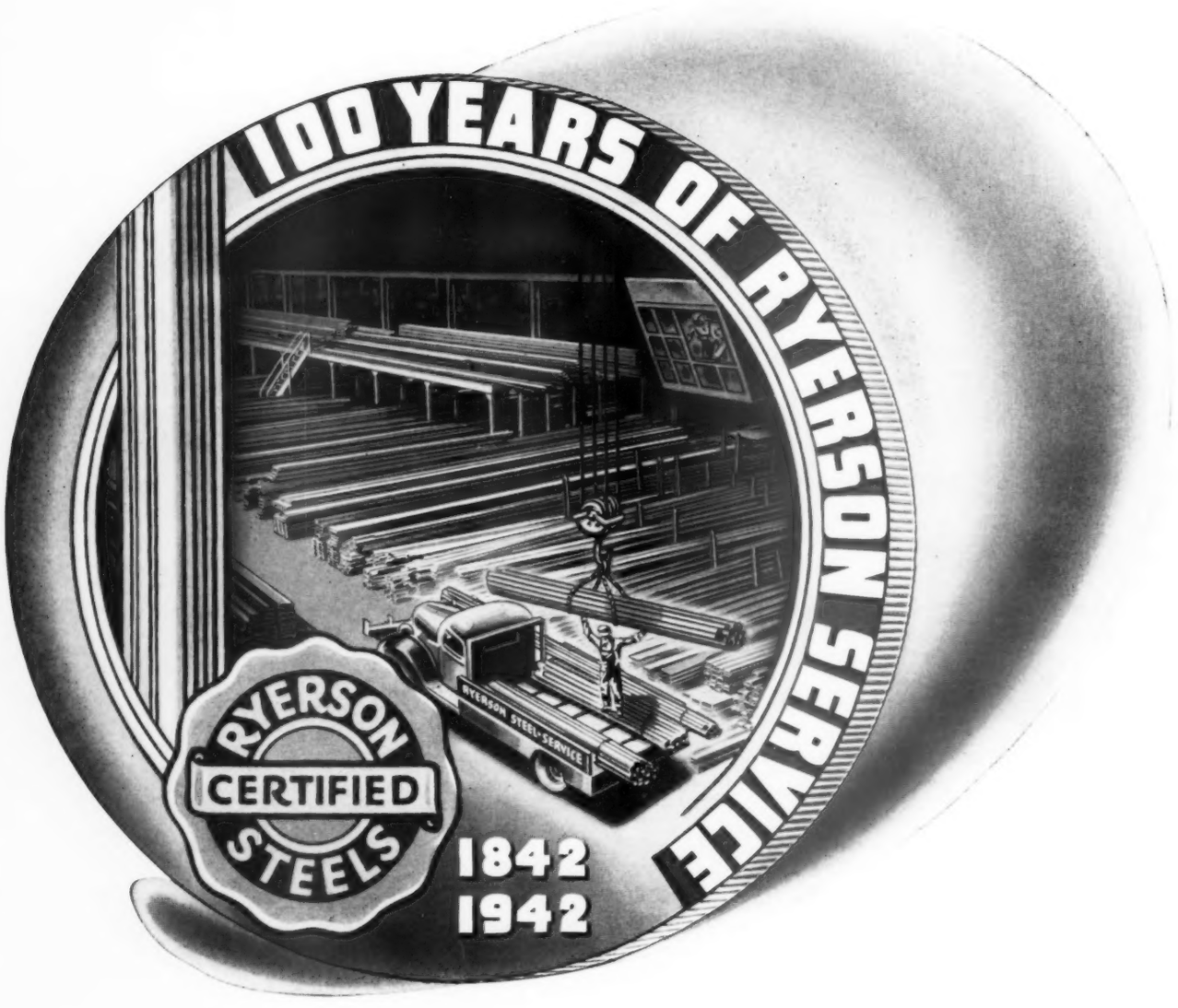
THERE'S a new era in government purchasing. No more striking evidence could be produced than the above "Special Notice" now being rubber stamped on Navy Department requests for bids. It is in big, bold type, the most prominent feature of the form.

Most buyers believe in specifications as a means of maintaining quality standards, setting certain desirable limitations upon the materials that may be furnished and that will be regarded as a satisfactory delivery. Most buyers also recognize that purchase specifications must be flexible enough, in use, to take advantage of technical progress and to permit the exercise of judgment, to serve as a tool and not as an end in themselves.

The government has been a leader in purchasing on specification. But with the rigidity which is characteristic of government regulations, these requirements have frequently proved to be a severe limitation on the buyer. Some of the technical specifications are definitely obsolete; many are impracticable in these emergency times.

The policy expressed in this "Special Notice" puts government and industry into partnership to accomplish the vital ends of war production. It places the requisition on the basis of a job to be done, rather than on fixed analysis. It invites the cooperation and suggestions of the manufacturer. It gives the government the chance to profit from the best and latest that industry has to offer. It opens a wider field for the hard-pressed industrial buyer who must procure the materials to fill these orders. It places all purchasing—government and industrial—on the basis of judgment. And there is no factor more important than sound judgment in purchasing.

Stuart F. Heinritz



Through Peace and War—
A Century of Service—

THROUGH 100 YEARS of peace and war—good times and bad—Ryerson has served industrial America. As in every other crisis, we continue to provide steel to meet the emergency requirements of our nation at war

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THE PURCHASING FUNCTION IN WARTIME

FROM the very beginning of this world conflict, months before Pearl Harbor and our declaration of war, American industry was warned that "Business as usual" was definitely out for the duration of the emergency. The full import of that warning is only now beginning to be felt, as the industry-wide conversion to war production is being made. But to the purchasing departments of industry, it was clear as early as 1940 that "Purchasing as usual" was a thing of the past. For two years, purchasing executives have had to adjust their work to constantly changing conditions and regulations.

Most obvious factor has been the increased volume of over-all production. It is not uncommon to hear of production schedules being doubled or trebled, of single orders amounting to more than a year's normal production, all of which multiplies the procurement problem. Supplies which were more than ample for total peacetime requirements are far short of the present demand for military use alone. Further shortages developed as imports of vital materials were first curtailed, then cut off altogether. That posed a problem of substitution, and of directing the flow of available materials into the channels most essential to the war effort. The priorities system developed to accomplish that end, extending to limitation orders and allocation of materials, affected purchasing procedures most directly and has been a major concern of industrial buyers for nearly a year and a half. Another series of regulations affecting prices, and aiming to avoid disastrous inflationary influences, has likewise centered its effects in the purchasing offices. Manufacturing concerns engaged in the production of civilian goods have been in a particularly difficult position. Where their requirements conflicted with those of war-essential industries, they faced the alternative of suspending operations or converting their facilities to war production. In the latter case, the buyer frequently had to deal with unfamiliar materials and markets, and without established sources of supply.

Purchasing policies have likewise been subjected to fundamental and far reaching changes. The material itself is what counts today, material to speed war production. Factors of cost have been subordinated to that one major consideration. Conservation, to get the maximum utilization from every tool and from every pound of material, has become a dominant need. To the Purchasing Agent it means that what can be saved does not have to be bought, and to that extent the pressure of demand can be alleviated. Subcontracting of parts which would normally be manufactured in the plant is another policy which aims to enlist industry's total production capacity directly in the war effort. A new standard has been set up—the one test for every decision: "Will it help to win the war?"

Washington today is responsible for the declaration that this is a Purchasing Agents' war. Materials and production will be the final means and measure of victory in the world conflict.

In the following pages, PURCHASING analyzes the procurement function in terms of today's requirements and today's objectives, consolidating the experience of the past two years in a comprehensive "blueprint" of the purchasing job in wartime, and how it can contribute to ultimate and decisive victory.

The One Test for Every Decision—

"Will It Help to Win the War"

"Production Begins With Purchasing"

WARTIME ORGANIZATION

OF A

PURCHASING DEPARTMENT

★ **New problems of buying in wartime markets and under wartime regulations demand a review of traditional buying organization to fit procedure to the new conditions**

THE basic principles of purchasing department organization are well and soundly established. But like every other phase of industry, they have felt the impact of war conditions and must be reviewed in the light of present demands so that they may be functionally adapted to efficient operation in a wartime economy.

Most purchasing departments are overworked today. The sheer volume of operations is an obvious explanation of this. It is not unusual for manufacturing schedules today to be double or triple the normal volume, or to have a single order represent a whole year's operations under ordinary conditions. This is directly reflected in the volume of purchasing activities, and when it is coupled with the growing difficulties of finding and procuring materials, the purchasing task is multiplied. But if it were merely a problem of expansion along established lines, it would still be relatively simple. Instead, there has been a notable shift of emphasis, so that certain purchasing functions which were formerly incidental to the buying operation, now become of major importance, sometimes even outweighing the buying department in terms of personnel and responsibility, just in order to push purchase orders through to completion. And with the complexity of governmental regulations, paper work and records requirements, the essential nature of the conservation problem, and wholly new conditions imposed by conversion to war orders, the purchasing department has added functions which were never contemplated in its original type of organization.



For example, here is a representative department in which the Purchasing Agent and two buyers are handling a volume of requirements which is roughly 50% greater than that handled by the same staff a year ago. A number of substitutions have had to be made; follow-up and expediting, formerly a simple matter of routine, is now a serious consideration on every order placed. The Purchasing Agent was placed in charge of priorities for the entire organization—on customers' orders as well as in relation to suppliers, for it seemed logical that this specialized information and procedure be concentrated in one department. Now the company is attempting to expand its percentage of direct war work. Their equipment is suitable for the manufacture of a semi-technical product for Navy use, and they are asked to make an estimate. A large blueprint and specification sheet are placed on the Purchasing Agent's desk, to line up sources and costs. The bill of materials contains 510 items, about half of which the company has never bought before and for which it has no established source of supply. The blueprint and specifications are highly confidential and cannot be reproduced or released for the purpose of getting bids. That means going through the list, item by item, by telephone and letter, to assemble the data needed before they can even start toward conversion on this product. The information is wanted in a hurry, and meanwhile the usual work of the department must be carried on.

That is not an isolated instance. It merely emphasizes the fact that a complete review of purchasing responsibility is in order at this time, so that the expansion which is taking place in many departments today may be keyed to the new conditions and directed toward the most efficient discharge of these new responsibilities.

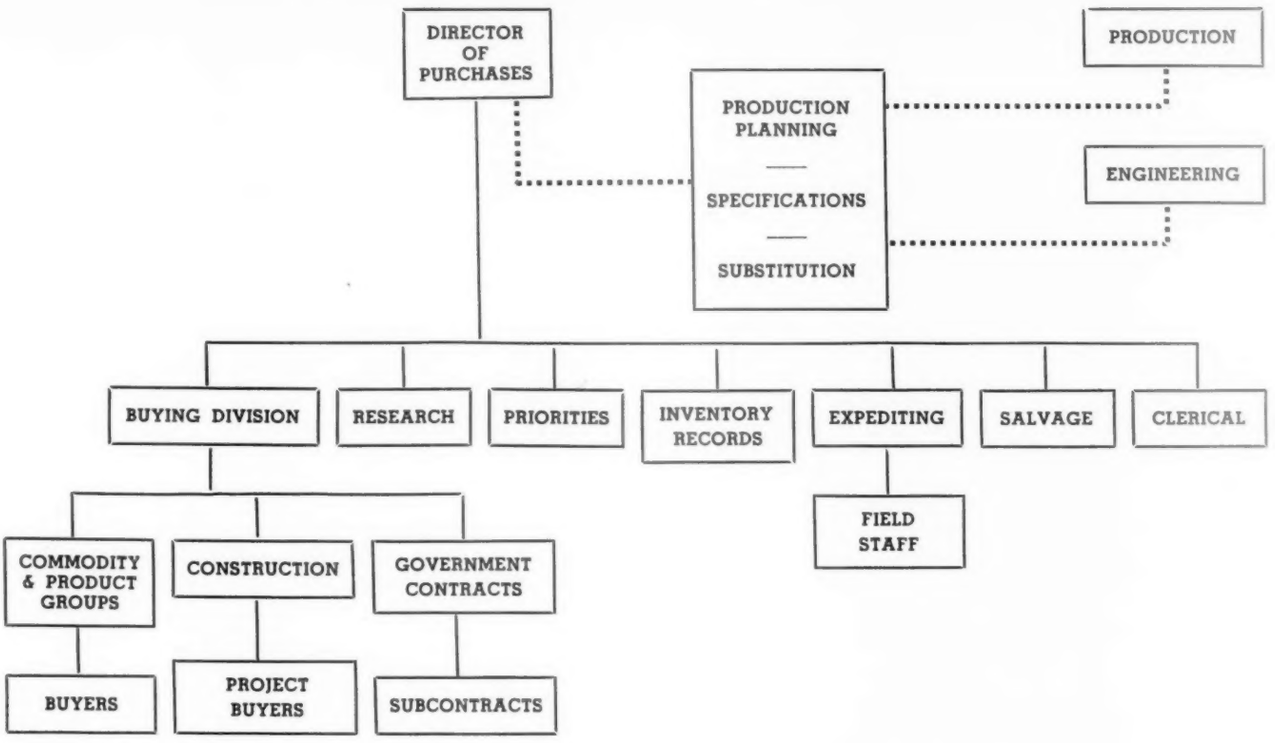
Organization Applies to Both Large and Small Companies

The large purchasing organization, already departmentalized, has a simpler problem than the small organization where one executive or one clerical worker combines several functions. But the problem is essentially the same in either case. Complete separation of functions as indicated in the chart herewith may not be practicable in the smaller company, but this analysis is nevertheless a basis for the assignment of functions that will help to organize the work more effectively.



The ideal situation, and the most effective job of procurement, might be achieved where the Director of Purchases can serve primarily in a coordinating and administrative capacity, directing the work of his department but leaving the execution of that work to qualified assistants in the various divisions, and devoting an increasing amount of time and attention to working with the manufacturing and engineering departments on decisions of company policy and proce-

PURCHASING DEPARTMENT ORGANIZATION—1942 MODEL



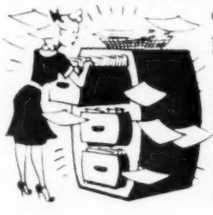
This is a functional chart, designed to show the responsibilities which must be provided for. In the small department, several of these responsibilities may be combined. In the large department, it calls for a staff of specialists, and the Purchasing Director serves more and more in a coordinating and executive capacity.

dure. That possibility is still the exceptional case, for most Purchasing Agents still have a direct buying responsibility; but it can be approached, especially when the department is expanding, if the overall functional picture is kept in mind rather than merely adding another buyer or another clerk.

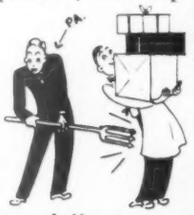
The Buying Division

Buying is the primary operation conducted in a purchasing department. The most practical method of assigning buying responsibility, whether there is one assistant or an extensive staff, is to classify purchases according to related commodity or product groups, with one buyer in charge of each. That breakdown of purchases may be very simple or very detailed. In any case it makes for specialized knowledge, continuity of contacts, and fixed responsibility. That principle is as sound today as it ever was.

But there are now new types of buying, embodying special conditions, which can well be set up apart from the established product groups, but following the same general pattern. There is little overlapping or duplication involved, and what there is can be readily taken care of in a properly coordinated department.



1. *Construction Buying.* Many companies are now building new plants or expanding existing plants, involving major considerations of construction and equipment wholly distinct from the manufacturing schedule and its requirements. Purchasing for such work can most effectively be handled on a project basis. If construction is going on at several different locations and on an extensive scale, the same principle can be expanded, with separate "Project Purchasing Agents" in the field at every point of construction, reporting to the one buyer at headquarters responsible for construction in general, who supervises and coordinates their activities.



2. *Government Buying.* Work on government contracts in the manufacturing department is generally carefully segregated from other operations; the materials going into such work are kept separate for purposes of cost accounting, special specifications to be observed, and allocations under specific preference ratings. Purchasing for these contracts can likewise be segregated, for the purpose above mentioned, as well as for record-keeping, inspection, and reports required by governmental contracting offices. As companies are devoting a greater proportion of their production to war orders, direct and indirect, the appropriate personnel can be drawn from existing product group buyers, where the volume of work is proportionately reduced. As the company reaches, or approaches, 100% operation on governmental work, the distinction no longer exists, and this buying division follows the same pattern of organization as buying for normal non-war purchases, eventually replacing the latter.

3. *Sub-Contracts.* The practice of subcontracting is

rapidly spreading, and will continue to be an increasing factor in purchasing for war production. In principle, it does not differ from normal buying procedure; the subcontractor is another source of supply. But there are some new implications in the present relationship between prime contractor and sub-contractor. There are quality and precision standards to be observed in which the purchaser of the prime contractor has little leeway for judgment, since they are embodied in the specification of the prime contract. This means greater attention to inspection, and a responsibility which amounts to supervision of the sub-contractor's operations rather than the usual buyer-seller relationship. There is a responsibility for the sub-contractor's costs. There is frequently a responsibility for procuring the materials with which the sub-contractor works, and always the desirability of seeing that this procurement is properly handled.

With the increase of sub-contracting, there is an inevitable shift from manufacturing to assembly aspects of the job, and this means close attention to the scheduling of sub-contracted work in order that the assembly operation may be kept in balance. This consideration alone points to the advisability of specialized attention to parts handled in this way, and if the volume of sub-contracts is sufficiently large, a separate division for this purpose in the buying organization is indicated. The experience of such specialized attention will be invaluable, too, in helping to determine what types of work can be best entrusted to the sub-contractor, and in choosing organizations best equipped—especially by adequate management, beyond their actual facilities—to do the job acceptably.

Handling Priorities

When priority preference ratings were first established, a year and a half ago, the immediate effect was an increase in the paper work connected with purchasing. But it soon became apparent that this paper work was not of the sort which could be assigned as a routine clerical operation. Many departments, even in the early days of 1941, were foresighted enough to assign one responsible member of the organization to concentrate on the subject, and with the development of various types of orders and regulations, and the increasing complexity of the supply situation, this policy has become virtually a necessity. As noted above, the problem of priorities now affects customers' orders as well as procurement of materials, and the logical place in the organization for centering all of this responsibility is in the purchasing department, which is most familiar with the subject and which must coordinate the priorities information for buying purposes.

The priorities section of a purchasing department has a threefold function:

(a) *Informative.* Keeping up-to-date with changing regulations as they affect the business; securing definite rulings so as to insure compliance in the company's operations; advising whether proposed operations come within the regulations and whether it is practicable to undertake certain orders or to introduce certain processes.

(b) *Administrative.* Securing the necessary preference ratings to be applied to purchases, which involves contacts both with customers and with the priorities agencies of the government; applying these preference ratings to purchase orders, with the preparation of the necessary documents, and applying the ratings to materials in process; clearing all orders as to priorities requirements; scheduling production operations in accordance with their preferential status.

(c) *Clerical.* The clerical detail of handling priorities and other governmental regulations is highly specialized, as well as being of considerable volume. It involves also the setting-up of records in such form that they will conform to the requirements of governmental reports and audit. If not handled by a separate clerical staff, it should at least be assigned to specified operators of the general clerical personnel.

Inventory Control

Inventory records are of course essential to any purchasing program, but inventory control is not always within the scope of the purchasing executive. Priorities regulations place a definite responsibility upon the buyer in respect to inventories, and require a very close coordination if they do not actually prescribe the advisability of placing control in the hands of the purchasing department.

It has become essential to have these records set up in accordance with government reporting, even to the extent of revising storekeeping policies so as to account for departmental tool and supply cribs which were formerly regarded as comprising material already issued from general stores. These records are now a controlling factor in buying, and must be not only accurate but so planned as to place the company in the most favorable position for securing replacements and/or additional stock as needed.

Expediting

With inventories restricted and closer scheduling of purchases, and with actual deliveries as the practical measure of procurement, fol-

(Continued on page 224)

The One Test for Every Decision—

"Will It Help to Win the War"

★ ★ ★ ★ ★ *The*

MATERIALS IN OUR WAR ECONOMY

★ **Scarcity of vital materials, and their diversion to the more urgent needs of war, call for knowledge and ingenuity by the Purchasing Agent to keep the wheels turning**

By COL. GEORGE S. BRADY

Materials Consultant
Civilian Supply Division

THE President in January asked industry to produce this year 60,000 airplanes, 45,000 tanks, and other arms in proportion. The amount of aluminum and stainless steel needed for one military airplane is enormous, and the chromium for the steel must be brought from overseas. Materials from 50 different countries are needed to build an airplane. There are more than 300 parts of rubber, with more than 50 pounds of rubber per plane in addition to the tires and tubes. A heavy military truck requires 16 large rubber tires. Can we build the equipment needed for war if our civilians do not make real sacrifices?

Last year we brought in more rubber than ever before because the army listed it as one of their 30 "strategic" materials. But most of it went into civilian tires. When we asked the industry last May to cut production of tires 20% in July, they doubled their production in June, so that when the cut was made the production was still nearly 40% above normal. We brought in from the Philippines more coconut oil than ever before because it is a valuable food oil and will be desperately needed before the emergency ends, but the soap makers boosted their production to the highest level in history. The excuse was that they were giving us the glycerin, but it is well known that a larger percentage of glycerin can be obtained by splitting the oil. We told the importers of Persian rugs that we could not afford to waste the scarce cargo space that we needed for chromium and other products to bring in luxury rugs, but they pressed the matter even to their Congressmen.

We brought in and refined more copper last year than ever before, but 14% of it was used in civilian automobiles and much more in novelties. The shoe industry handed us a proposal to furnish materials for 1942 to make 100 million more shoes than ever manufactured before in one year, and most of the hides, goatskins, and tanning materials had to be brought in from the Far East and should be guarded for needed military uses. I could trace for you the same story through almost every one of the 4,000 materials needed to make military and naval supplies.

Some of us in Washington are disturbed at times about interpretations of old laws that interfere with emergency planning. Common sense will tell you also that in an enormous industrial country such as ours it is humanly impossible to gather men into a central government and expect them to plan the requirements and the flow of all the materials that go into the production of our goods. Unless industry is permitted to get together to do the major part of this work cooperatively, then we will have the same dislocations that we had in the last war, and this time we cannot afford to make those mistakes.

Let me review a few examples of what happened during the last war which would be fatal to repeat in 1942. If any of you have read the glowing accounts of war production in 1918 as set forth in certain books written after the war, you may have the impression that a wonderful job was done. You have lately heard indictments of giving out of the military orders to a relatively few large industrial concerns. In 1918, we did not do that, so we are told; we gave blanket orders to a vast number of individual companies, large and small, to go ahead and produce at will the various parts and small items of equipment. I tell you now that we cannot afford to waste the materials that would be tied up in such a lack of coordinated planning. The Army Ordnance has tried to avoid that this time by centralized control. I will cite a few cases of 1918 lack of control:

When the Armistice was signed in 1918 we had 45 steel curry-combs for every horse and mule in France. We were building partitions in warehouses in France with $100 typewriters still in the boxes. But we had to borrow guns from our Allies! One company was making 83 4-inch mortar forgings a day, but the plants that could machine them could handle only 10 a day, and not one shell for these mortars was ever produced. We built 24,658 cylinders for gas warfare,

but not a single firing mechanism was produced, so that the cylinders were worthless for the Army. On November 11, 1918, we were making 7,044,000 artillery shells a month, but only one-third that number of adapters and boosters, so that 66 percent of the shells were worthless. The powder people were doubling the capacity of the shell filling plants to bring them up to 2,400,000 shells a month, but the delivery of shell cases was only 300,000 a month. In the textile industry we produced 140 million yards of denim for soldiers' work clothes, enough for 35 yards for every soldier, while we had acute shortages of other cotton products.



It has been estimated by competent authority that not 10% of the money spent during the last war actually helped win the war. Perhaps money is of no consequence, but this time we cannot possibly afford to waste the materials that would be tied up in inventories in such unbalanced production. There is only one solution. The relatively few firms responsible for the final finished product must exercise a control over the giving out of the orders for the vast number of subsidiary parts to be manufactured by the smaller firms. It is the normal method of our system; it will not work otherwise unless we build up a tremendous bureaucracy in Washington.

In regard to our so-called luxury products, I am one of those who firmly believe that sacrifices should not be carried to the degree of dire distress. We have a wonderful mechanical age that we do not want to destroy. Furthermore, our generation has a standard of living built out of the goods of this mechanical age that is responsible for the high morale of our country. Morale of a people is as necessary as guns for the soldiers. We must not make indiscriminate cuts that would destroy that morale. We will not have to do that if we can foresee the shortages and plan co-operatively to use materials to the best advantage and adapt substitutes quickly. We in Washington can tell you of the needs and the shortages; we cannot plan and operate your industries. We can give you allocation orders that will serve you as guides and also serve you as implements to obviate previous contract difficulties; but if your industries cannot get together to figure out your requirements based on a given approved production, and then cannot work together to share the materials and carry out the co-operative work necessary, then it will be impossible to do the job without duplicating the staffs of industry in the Government.

Almost everything in the way of prepared foods is related in some way to sugar. This material is a typical example of the complications involved in materials planning. The answer to the question of how much sugar you will have does not lie alone in figures on production and ordinary use. We know today that we will not get the 900,000 tons that was on our quota from the Philippines, and that what we get from Hawaii depends upon whether or not the Navy will permit the boats to tie up there loading for many days at a time. We know that we can get more sugar cane in Cuba, but the demands for ethyl alcohol for explosive manufacture is going to be so great that a large proportion of the cane may have to be converted into invert and not into sugar. If we can pick up molasses and ethyl alcohol in the British Islands to send to England it will relieve the demands on Cuba. Then we can convert plants manufacturing beverage alcohol over to the making of ethyl alcohol from corn so as to relieve the demand on sugar.

But in doing this we have to remember that we have lost about 200,000 tons of tapioca that we were importing from the Far East for the manufacture of glues and paper so that puts an added burden on the corn industry to make corn starch, just at a time also when one of the big powder companies is demanding tremendous quantities of glucose from corn in order to make products that are to replace glycerin that we get Far Eastern coconut oil. Those are only a few of the interconnecting elements that are tied up in the single item of sugar. Before we get through planning for the sugar we find we have to make innumerable changes in our economy, such as giving the tobacco industry a substitute for glycerin, shifting the tin plate industry over to different methods so that the palm oil it uses can be diverted to soap and glycerin making instead of taking the scarce coconut oil that we will need for food. One leads to another, so that any change in the cane sugar economy not only means planting more sugar beets, but also means shifts in a dozen other industries.

When menthol was cut off from Japan we diverted citronella oil to a chemical plant where it was split into citronellal and geraniol. The first of these normally makes lilac perfume and the second rose perfumes. Now we will make menthol instead of lilac perfume, and there will be an excess of material for rose perfumes. When Madagascar was cut off as a supplier of vanilla, and the crop in Mexico was short, we diverted cloves into the making of synthetic vanilla. Our supply of osseine from Holland and Belgium was completely cut off, so three plants started making this material which is the basic raw product for gelatine. But we had to tell them that we could not bring bones from India, and the supply from Argentina was needed for buttons, bone char for refining sugar, bone meal for heat-treating steel, and strong glues for the abrasive industry. It will be some months before we get a large enough increase in vegetable ivory from Ecuador, so we had to count on more bone buttons because the supply of pearl shell from Australia was cut off and plastics were scarce. Thus, if we are to have white sugar, and steel for airplanes, and grinding wheels for making the planes, and buttons for your clothes, we must do with less gelatine for edible use.



We used to obtain 100 million pounds of tung oil a year from China for making paints and varnishes. To replace this we asked the State Department to treat with Brazil to obtain three times the normal plantings of castor beans, and also to increase production of oiticica oil. Then we asked the chemical industry to dehydrate the oil obtained from these beans. We asked another industry to build a fractionating plant to split fish and soybean oils for blending into varnish oils. Today we are practically independent of the Far Eastern tung oil, but this took the fish oil out of the mechanical industry and the soap industry, and the soybean oil out of the food industry, so that other adjustments had to be made. All this indicates that while the Government is in a position to anticipate and point out, industry itself must do the work.

During the past year the imports of raw materials from Latin America have been doubled, and we hope to double again this year. Fortunately, the Americas stretch nearly from pole to pole and have every degree of climate, so that almost anything can be grown. You may rest assured that not one single item used in

normal American life is being overlooked. Take the case of burlap, which came from India at the rate of 70 million yards a month. We need it for bags and linoleum backing, and carpets, and other uses. For the past year the importers and the industry worked with us on this problem, so that now we are beginning to get fairly large quantities from Brazil, and before the end of this year the Brazilian production ought to be sufficient to take care of our most serious needs.

In spite of a far worse shipping shortage than existed in the last war, and in spite of much wasteful use because of inordinate civilian demands, a fairly good balance was obtained during the past year. We can keep up a supply of practically everything—foods, spices, drugs, perfumes, fibers for textiles and brushes, metals, minerals, and raw materials for the vast chemical industries, but every industry without a single exception must at once make up its mind that it cannot continue to produce non-war products at anything like the rate it did during the past year. The cutting must be done. It should be done co-operatively so that the burden will not fall on those patriotic ones who have not rushed out to buy up large stocks.

Substitutes can be used to good advantage, or where the supply will be exhausted it is better to cut the use now rather than have it entirely cut off later. How much better it would be for the cigarette manufacturers to reduce the percentage of Turkish tobacco rather than have to drop it entirely later. Had the rubber manufacturers listened to us last May they would not be in the bad situation they are today. There are others who should stop and think of that. The soap manufacturers are an example. We have little tin left now, so that we are faced with a shortage of electrical solder. It was only a few weeks ago that makers of tooth paste tubes and chocolate wrappers were calling us autocratic because we wanted to have them use substitutes. The woolen manufacturers could have been using a blend of substitute long ago; but they, like many other industries, would not fix the leaky roof until the rains came.

Waste and Duplication

Another important factor is the elimination of waste. We have always been the most extravagant nation in the world. We face a dire shortage of rubber, yet 5,000 tons a month is being consumed in Sunday pleasure driving and other thousands of tons are being consumed on milk and bread and other delivery trucks in silly duplication. As many as five bakery trucks deliver a few pies and loaves of bread each at the same stores every day, while the duplication of delivery of milk in some parts of the country has been called to our attention time and again.

In 1940 the returns on bakery products was 38 million dollars. In 1941 it was much larger, and every bit of it was pure waste. New York City is one of the worst offenders, as this wastage is required there by the laws in the name of health. Bread returns run about 4%, while pie returns run 2½ to 3%. Last year the bakeries had to get priorities on incinerators to burn this food, waxed paper, cellophane and all, because the law does not permit resale or delivery to the poor. While we bend every effort to produce more food, and while millions are on the verge of starvation, our cities deliberately burn up food in the name of health. The nation that does these things will eventually suffer for it, and I can see from present indications that there are going to be many food shortages before this war is over.



Plan for Needed Surpluses

We are not preparing ourselves adequately to have the surplus necessary to feed the hundreds of millions of starving peoples of the world after this war. Six million died of starvation in Europe in the year after the last war and a million died of starvation in a year in one province of China alone because we could not get there with food quick enough. Ten times this number may die of starvation immediately after this war unless we are prepared for the effort. If all our talk about democracy and human brotherhood is not idle talk we will stop our own wastages and get down to the task ahead of us. We could right now do better for England if we dehydrated the excess vegetables and fruits that go to waste on our farms and orchards. One bomber can carry enough dehydrated vegetables to supply a meal for 500,000 persons.



No one in Washington wants to put anyone out of business. We do not want to stop completely any of our industries, even the so-called luxury ones, if they can plan a sensible program that will not deplete our supplies of materials needed to give an overwhelming superiority in airplanes and tanks and guns and ships. But the industries themselves must do a real job of planning what those sensible needs are. You must stop the wastages. You cannot continue to waste paper and tin and glass in innumerable small packages of goods. You must get together co-operatively if necessary to cut down on odd sizes and shapes and styles that tie up materials in needless stocks.

Public is Ready for Sacrifices

The American public today is ready to make sacrifices if some one will lead the way. Of course people will buy luxuries if they see them spread before them in the stores. For example, there is today no hope of replenishing our supplies of silk that we need for parachutes and for powder bags. It is almost criminal on our part to continue to be using that silk in hosiery. I am positive that American women and men would welcome a chance to show their patriotism by adopting a war stocking of cotton, and it is easy to make beautiful hose of treated cotton or mixtures. Must you wait until we have no more silk for powder bags? There is no substitute for silk for powder bags. It is the only material that is consumed by the flash of the gun. Without it, Navy guns will be limited to the smaller calibers using metal cases. Facing that condition, do you think we should be using up irreplaceable stocks to make consumer goods? Do you think we should be wearing silk stockings now?

I can name a hundred cases where industry could take the leadership and do a patriotic job to conserve materials. You must stop waiting for Washington to force you to make every move. That only builds bureaucracy and causes disastrous delays. If there is any doubt in the legality of your moves, take the initiative anyway and force Washington to command you to do the thing that you ought to do. Then it will be legal for you to do it!

Address before the N.R.D.G.A., New York City.

SPECIFY STANDARD TYPES and SIZES

★ **Avoidable wastes of time, material, and production capacity can be eliminated by applying the principles of standardization in manufacture and purchasing**

MUCH attention has been given to shortages of materials needed in war production. Equally vital to production are the small tools and operating supplies used in fabricating the material, and requirements of these items have increased proportionately as the volume of manufacturing schedules goes up. Shortages in these lines, and particularly in metal cutting tools, have been imminent for some months, and deliveries are getting longer. Supply buying, once a routine part of the purchasing program, is a major problem today.

One of the factors contributing to this shortage is the extensive use of special types and sizes. If standard items could be used exclusively, most of these supplies would fall in the class of "shelf merchandise" normally handled as stock items by mill supply distributors, and there would be much greater flexibility in that such items could be applied where needed, and a reasonably steady flow could be maintained to serve the needs of war industries. But as soon as special types and sizes are requisitioned, it becomes a manufacturing problem affecting the production program of both the tool manufacturer and the tool user. The manufacturer has to fit the order into his production schedules, diverting his equipment to that particular order at the expense of normal output, thereby contributing to some extent to existing shortages or delays in delivery of standard numbers, and the user is dependent on that delivery for the progress of his own manufacturing schedules.

This situation has always existed to some degree, and just at the time when standardization could be most effectively applied to relieve the condition, it has been aggravated by the conversion of users' plants to new operations with different requirements, and by the exacting demands of governmental specifications and new product designs which are frequently not keyed to existing standards. Affecting both of these factors is the urgent need for speed in conversion and production, and there is a constant need of balancing possible advantages which might be secured through standardization, against the loss of precious time required for redesign and for conversion of the larger tool units. Although in the aggregate the supply problem is serious, the individual items in any particular case are relatively small and seem subordinate in importance to the larger problems of production.

There is a further consideration in that the governmental requirements on which most of the present production is concentrated, are so vast that in sheer volume many of the present "specials" exceed the production of the so-called standard types and sizes which are comparable—a condition which raises a nice question of definition as well as of manufacturing and design policy, and complicates any generalized reasoning on the subject.

To get a factual picture of this situation, PURCHASING has made a study in which approximately 300 manufacturers participated, representing both the producers of small tools and supplies and the users of these products. The study concerned ten classifications of such items in general use, all of which are vital to production in war industries. These ten headings are: bearings, cutting tools, drills, electric motors, gears, hacksaws, instruments, portable tools, taps, and valves.

Among the users of these items, 67.6% specify special types or sizes of one or more of these groups. In a few cases, 6.5%, they have special requirements right "across the board" in all ten classifications; on the average, their special purchases affect four classifications per company. The condition is most prevalent in respect to cutting tools, drills, taps, and gears; it is least prevalent in respect to hacksaws and valves, where effective standards have been set up in the producing industries, and in portable tools—an assembled product in which the manufacturers' regular lines have been designed to meet most operating conditions, and on which the need for specials might be reflected in special drills, for example, rather than in the tool itself. Only 32.4% of the companies have succeeded in holding entirely to standard numbers, though there are a number of replies indicating that their special requirements—chiefly of motors, instruments and gears, are

★★★★★★★ *The Purchasing Function in*

TABLE I

Product	A Percentage of companies that use special types or sizes	B Percentage of companies using only standard items, that are having trouble with deliveries	C Percentage of companies that are experiencing difficulty in getting both standard and special items	D Percentage of companies that have delays on specials but not on standard items
Bearings	28.7%	27.7%	13.0%	13.9%
Cutting Tools	45.4%	24.1%	26.9%	16.6%
Drills	45.4%	20.4%	22.2%	18.5%
Electric Motors	30.6%	15.7%	7.4%	21.3%
Gears	40.0%	9.3%	13.0%	20.4%
Hacksaws	10.2%	18.5%	2.8%	2.8%
Instruments	21.3%	23.2%	11.0%	8.3%
Portable Tools	10.2%	22.2%	3.7%	2.8%
Taps	40.8%	22.2%	19.4%	20.4%
Valves	15.7%	11.0%	5.6%	8.3%

merely in accordance with customers' specifications rather than being caused by their own operating requirements.

On the producers' side of the picture, it becomes apparent that the extensive use of specials does not affect a similar proportion of total output, but that it does reach into the great majority of plants to some extent. Only 22.6% are able to operate exclusively in the production of standard items, but an additional 35.5% do so to the extent of 90% or more of their output. Thus substantially more than half (58.1%) devote the great bulk of their capacity to the manufacture of standard products. Among the others, 16.1% report that from 15 to 30% of their output is of a special nature; 19.3% report that 33 to 50% is special, and 6.5% report that more than half their output consists of specials.

Deliveries Are Slower on Special Items

The benefits of standardization, if any, in relation to the war production program, must be considered in the light of two questions: Would deliveries be speeded up if requirements could be standardized? Would total output be increased if production capacity were applied exclusively to standards?

Table I provides some significant basic data on the first of these questions. It presents, in Column A, the percentage of total replies in which special types or sizes for each product classification are specified. Column B shows the percentage of companies in which no special items are used for that classification, but in which difficulty is now being experienced in getting deliveries of standard items, it being known that there is tightness of supply in all these groups. Column C shows the percentage of companies having difficulty in producing both standard and special items. Column D shows the percentage of companies which find deliveries slow on special requirements though no such difficulty is experienced on standard purchases.

For example, on the first item—bearings—54.6% of the buyers reporting in this study (B plus C plus D) are having trouble in getting deliveries, which is evidence of rather a serious situation. But break this down according to standard and special requirements: 28.7% of buyers use specials to some extent and 26.9% (C plus D) are having difficulty in getting their deliveries, which is a ratio of nearly 94%. On the other hand, 71.3% do not use special bearings, and only 27.7% coming within this group report that they are having trouble getting the standard items which they order—a ratio of 39%. Or on the fairer assumption that all use standard bearings to a greater or less extent, 40.7% (B plus C) are experiencing delays.

These figures seem to indicate that while the general situation is still serious, it is far less acute in respect to the standard items. A similar condition is revealed in every one of the ten classifications, varying only in degree. The most favorable figure on delivery of specials is on hacksaws, where only 55% of buyers report difficulty, and from there it runs up to 97.5% on taps, with six of the ten groups showing a ratio of 90% or more. In respect to standards (B plus C), the most unfavorable ratio is 51% on cutting tools, running down to 21.3% on hacksaws.

Buyers are practically unanimous (93%) in reporting appreciably faster deliveries of standard items than of specials.

It does not necessarily follow that standardization

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is a complete remedy, for our production of standard types and sizes is already under severe pressure to keep up with the demand, and the conversion from special to standard items, to whatever extent it can be accomplished, would not be pure gain in that it would increase the demand for the standard numbers. However, the evidence is rather conclusive that the situation might be very much relieved if any considerable part of the special demand could be eliminated. To that extent, production in the industries which use these supplies in the manufacture of war materials could be increased.

Greater Total Output

There is a further factor of prime importance in the effect which such standardization might have on the output of those who produce these supplies. If the manufacture of special items were eliminated, and this capacity applied to the production of standard types and sizes, how much could total production be increased? The answer to that question is largely a matter of opinion, but these considered opinions are at least indicative. One third of the replies, or 33%, believe that the increase would be negligible, 33% estimate that production on standards would be from 5 to 15% greater: 24% estimate that it would run from 20 to 30% greater; and 10% believe that output could be increased by 50% or more. It is obvious that no generalization can be made from these figures, but on the conservative assumption that 10% of a plant's present output consists of special items, and that the equipment could produce 10% more of a comparable standard item, then total overall output would be increased by 1%, which is not a large percentage figure, but nevertheless represents a lot of very urgently needed taps or drills or milling cutters. Incidentally, all of these products are included in the big middle group where improved production of 5 to 30% might be accomplished.



Conceding that cost is not a controlling factor under present emergency conditions, it is nevertheless pertinent to note the estimates of additional costs entailed by the manufacture of specials. No extra cost is reported by 11.8%; 10 to 15% additional is the estimate of 23.5% of the manufacturers; 25 to 50% seems probable to 47.1% of the producers (cutting tools and twist drills are reported in this group); while 17.6% estimate that the additional costs run even more than half.

All of these potential advantages are predicated on the assumption that standardization of these items is practicable. Only 18% of the buyers are of the opinion that standard items could be substituted for their present special purchases without serious inconvenience. The suppliers are not in agreement with this; 69% report that customers are demanding special items when standard items could be made to serve the same purpose. They see little possibility for the elimination of special requirements of portable tools, gages, milling cutters, taps, dies and reamers. They believe that specials in bearings, cutting tools and twist drills might be superseded by standard types and sizes in 35% of the cases. They believe that specials on saws, valves, wrenches and other items could be eliminated altogether without any hardship on the user.

This is an interesting situation in view of the fact that a good many of the present special items were originated by the producers rather than by the users, as a matter of marketing policy. Today the emphasis in advertising, sales, and technical counsel to customers is altogether in the direction of standardization as a means of giving better service. In the fields where industry-wide standards have not yet been initiated, there is fairly general agreement that much could be accomplished along this line, reducing the varieties currently in demand by anywhere from 15% to 75%. Incidental comment, however, suggests that to undertake such a program now might disturb accepted designs and tooling to an extent that would offset any potential advantages.

Nevertheless, a great deal is being done to combat the tendency toward introduction of a still greater number of special requirements. A manufacturer of instruments whose business has become almost 100% special during the present emergency, with variations in design for almost every order, writes: "We have prepared special offset prints showing the most popular types of special gages, and all of these have been used as much as possible to help people to know what we have rather than to ask for something different, when something we have made up previously could be used. But the requirements still vary so much that even these more or less standard types of special gages have to be modified to suit particular requirements."

How Buyers Can Help

Standardization starts with design. That is to say, it starts in the buyer's own organization. The time to standardize is before design and shop drawings are translated into purchase orders. Nowadays the pressure is for results, and there will be many cases in which results may justify the use of non-standard sizes. But the possibilities of using standards should first be fully explored. There is a reluctance to change designs after they have once been put on the drawing board, and there is a popular notion—particularly among those who do not have to face the actual procurement problem—that you can get anything you want if only your priority rating is high enough. The extent to which sheer carelessness in the disregard of standards may go, is illustrated by the following letter from a supplier:

"We constantly receive requests for special jacks and wrenches when we know that the user could do the job just as well if not better with standards. The original fault seems to lie with many engineers who design the product or installation requiring specials. If they would first check available standards, they could design their product or installation accordingly. The idea of designing specials is perhaps a hang-over from the old days before modern industrial service tools and equipment became standardized and available on catalog identification.



"A representative of a large company building aviation engines was in our office the other day with a big stack of blueprints illustrating special wrenches. It was interesting to see how standard socket wrenches could be laid down on the face of the blueprint to reproduce the special wrenches to all practical measurements. We always appreciate the opportunity to counsel on special requirements, but we offer the above incident in a spirit of helpfulness to customers who are delayed through diddling with specials."

EXPEDITING BECOMES A BUSINESS SCIENCE

★ **The purchase order is ineffective without delivery of the merchandise; scientific follow-up is needed to get the materials to the point of use, on time**

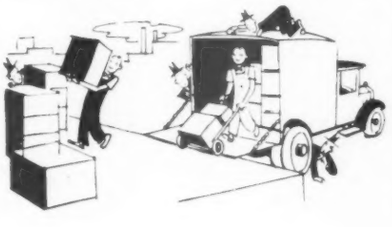
DELIVERIES are the test of successful purchasing. One of the major changes in purchasing department responsibility and procedure in the present emergency is that the status of expediting has become an important and integral part of every purchasing rather than a casual operation applied only in special cases. In a normal peacetime purchasing organization, expediting or follow-up is generally assigned to the chief clerk or one of his assistants; the simple equipment may consist of a tickler file to call attention to the order a few days before the expected delivery, and a couple of form letters; if any unusual delay occurs, or if operating departments put in a hurry call for the material, the matter may be referred to the Purchasing Agent or buyer, who thereupon exerts whatever pressure may be necessary upon the supplier, by telephone or wire, to hurry the delivery.

Such methods are wholly inadequate under present conditions of close scheduling, restricted inventories, and competition for materials. It is not unusual today to find expediting divisions in the purchasing department, actually outnumbering the buying staff, and with extensive field organizations in direct and constant touch with suppliers at their plants.

During World War I, when somewhat comparable conditions prevailed, expediting was one of the more picturesque and romantic phases of procurement work. The popular examples of effective expediting told of Purchasing Agents locating overdue freight cars on side tracks in crowded yards, and riding in the engineer's cab to personally conduct some critical shipment into the plant just in the nick of time to prevent a shutdown. Those tactics, suited to the need of that former day, are now as outdated as the pony express.

Expediting is Scheduling

Today's expediting procedure is less romantic, but far more scientific. It starts when the order is placed and follows through every stage of production in the supplier's plant to insure that the material will be ready at the promised time and will not be deferred or diverted. The physical delivery, which was formerly the chief—or perhaps the only—consideration, is now merely the final step in a process that runs concurrently with the whole purchasing transaction and is intimately coordinated with it.



Expediting is scheduling. When an order is placed, whether for a machine tool or similar equipment, or for the material that is to be fabricated, or for some assembled part needed in the completed product, the delivery date is an essential part of the contract. It has been repeatedly stressed from Washington that the interests of the war production program as a whole are best served by scheduling that delivery date as closely as practicable to the time of actual need, rather than to demand an earlier delivery at the expense of some more pressing need in another plant equally essential to the total effort. To "beat the promise" is a splendid achievement, but if to anticipate delivery by two weeks on one order means embarrassment or delay in another quarter, the gain is of dubious value in the national scheme. This situation makes it more than ever imperative that schedules be closely observed, for the margin of safety is narrow.

To schedule a delivery date that is both reasonable to the supplier and satisfactory to the buyer, the Purchasing Agent can not rely solely upon the promise or judgment of the supplier. He must have available in his department the accurate knowledge of production time required, materials and production equipment available for the job, and any prior claims on that material and capacity resulting from more favorable priority preference ratings. All of these factors, fully understood between buyer and seller, are necessary as the basis for a workable purchase agreement. On that basis a delivery date can be set with a fair expectation that it will be observed, and both the producer and the user can schedule their operations accordingly.

The buyer's responsibility does not end here. If for any reason the supplier's schedule is delayed, the buyer's company is equally affected and must adjust its own plans. If the Purchasing Agent is not advised of changes in the schedule, and does not take steps immediately to see that the trouble is corrected, any "pressure" for delivery at or near the time when the shipment is due, is likely to be too late to be effective.

The Progress Chart

Successful expediting in these days requires setting up and following the progress of production on a purchase order in exactly the same way as a shop order in one's own plant, starting with the bill of materials and recording the progress of the order not with promises, but with actual reports from day to day or from week to week, as the case may require. Then pressure—or assistance—can be used at the time and at the point where it will really expedite production and delivery, and the Purchasing Agent has the knowledge and practical as-

surance that his purchases will come in according to schedule.

The mechanics of this procedure are not difficult. There is a pattern available in the production planning department of his own company. It is the system customarily employed on construction projects, where architectural and engineering inspectors regularly keep in touch with the contractor's progress. It is the system used by the Army and Navy on technical contracts, by placing their own inspectors or contracting officers directly in the supplier's plant. The greatest obstacle is a mental one, adjusting the departmental organization to a new balance, in which the expediting section occupies a position that would be considered disproportionate under normal conditions.

It starts with the materials necessary to fill the order. If the supplier falls within the general classification of a subcontractor, the Purchasing Agent may have the direct responsibility of seeing that these materials are provided through his own purchases or otherwise made available. In the more usual case, it is a matter of seeing that the appropriate preference ratings are applied to the procurement of materials, and getting the assurance that these materials are definitely allocated for the specified purpose. This may mean working closely with the supplier's purchasing department to be sure that the production schedule will not be delayed for lack of materials with which to work.

The Field Force Moves In

As soon as production is under way, modern expediting calls for a representative of the purchasing department to maintain contact with the supplier, and to report regularly to his own company. A typical schedule calls for such contact and reports on a weekly basis; in specially urgent cases, a daily schedule may be indicated. He must "live with the supplier" to whatever extent is necessary to see that the work progresses satisfactorily.

There is an important psychological factor to be considered in this connection, for this is a project in cooperation, and the expediter who makes a nuisance of himself is likely to hamper rather than to hasten production and thus defeat his own purpose. In theory, it is more effective to have the field men working regularly on specific assignments, permanently stationed in certain geographic territories where a considerable volume of work is to be done, and where their growing familiarity with the plants and production personnel may be utilized to the best advantage. Others, where the work is less concentrated, may be routed from the home office. In practical operation, some Purchasing Agents have found it more satisfactory to move the field men around from time to time, not to the extent of destroying the continuity of their contacts with suppliers and their familiarity with particular projects, but to serve a threefold purpose: (1) to avoid the possibility of falling into a rut, which would be fatal in handling this type of work; (2) to avoid the danger that necessary persistence and aggressive action in expediting, which is essentially a hard-boiled job, might degenerate into terms of personalities rather than of the end to be accomplished; and (3) to build up a more flexible organization, capable of efficient and intelligent action as new responsibilities arise.

The function of the field man in such a set-up is to secure a detailed report on every order in process of manufacture for his company, showing exactly at what stage of production it is and what may be expected regarding its completion on schedule. These are factual reports, not promises, and are promptly sent to the expediting division in the purchasing office, where they are recorded and analyzed. Through a knowledge of manufacturing processes and schedules, these reports can be accurately interpreted and evaluated in terms of probable delivery, and a detailed progress report can be placed on the Purchasing Agent's desk daily.

Organizing a Staff

The expediting division in purchasing should be staffed with men familiar with production work, and must be provided regularly with copies of the purchase orders which they are to follow and with the production schedules to be observed.

The field staff is a separate problem. In some companies it has been solved by assigning the technical sales staff to this work now that sales work is less of a problem. Their technical qualifications, knowledge of the company's requirements, and familiarity with the territory provide an excellent foundation for service in expediting. At the same time, it enables the company to maintain its organization for the future, avoids the necessity for lay-offs, and provides a means for these representatives to maintain their outside contacts.

When this is not a practicable solution, it is necessary to build and train a staff for the special purpose.

Training such a staff consists primarily in defining the responsibilities of the assignment and explaining the system which is set up to accomplish these ends. The greater part of the practical training will necessarily be acquired right on the job, from the experience gained in their contacts with suppliers. The Purchasing Agent must be ready at all times to back up their efforts and to make suggestions for the proper handling of particular conditions, so that over a period of time a consistent policy will be evolved. But the chief factor in the success of such an expediting system is the self reliance which can be developed in the staff.

The One Test for Every Decision—

"Will It Help to Win the War"

★ ★ ★ ★ ★ *The*

SIMPLIFICATION— THE NEGLECTED KEY TO PRODUCTION ECONOMIES

★ **Unnecessary variety of sizes, styles and colors constitutes a serious hurdle to the attainment of production quotas under the Victory Program**

SIMPLIFICATION, in the industrial sense, consists in reducing excessive variety of types and sizes of products manufactured, purchased or sold. It is not a technical process, but is commercial and selective; its function is to determine which sizes or items of a product are the most important, and to concentrate production on these important items whenever possible. There is an element of simplification present whenever a manufacturer reduces the number of types and sizes in which he makes his product, or when a consumer limits his purchasing to stock items. When a group of manufacturers, distributors and users cooperate to concentrate their respective operations on a definite and relatively small list of variations, then simplification becomes simplified practice.

The national Bureau of Standards has for many years sponsored simplified practice as a method of eliminating avoidable waste in industry. More than 180 specific schedules of simplified practice have been accepted and made effective, reducing commercial varieties of products from 10% to as high as 97% without any loss of utility in serving the purposes for which these products were intended. A few typical examples are:

Coated abrasive products, reduced from 8,000 varieties to 1,755.

Box board, reduced from 244 thicknesses to 96.

Welded chain, reduced from 1,831 varieties to 1,214.

Steel drums and barrels, reduced from 66 sizes to 26.

Files and rasps, reduced from 661 varieties to 377.

Some of the more obvious advantages accruing from these programs may be summarized briefly.

To the Manufacturer: Less capital tied up in slow-moving stocks; simplified inspection requirements; longer factory runs with fewer changes; less idle equipment; less stock to handle; larger production units; less special machinery; more prompt deliveries; less chance of error in shipment; less obsolescence in material and equipment.

To the Distributor: Increased turnover; elimination of slow moving stock; staple lines—easy to buy and quick to sell; greater concentration of sales efforts on fewer items; decreased capital invested in new stocks and repair parts; less storage space required; decreased overhead and handling charges.

To the Consumer: Better values than otherwise possible; better service in delivery and repairs; fewer items to be carried in inventory; better quality of products.

This program has been working for industry for many years of peacetime, making possible these advantages to manufacturers, distributors and consumers through the medium of Simplified Practice Recommendations developed by industry in cooperation with the National Bureau of Standards, on a voluntary basis.

Use Materials Wisely

More than a year ago, while the emphasis in our national production program was still on defense, it was pointed out that simplification could be a powerful aid in this emergency. Donald Nelson pointed out that the productive capacity of the nation for defense could be increased by from 25% to 33⅓% through the elimination of unnecessary variety in sizes, types, grades, qualities, etc., of civilian goods.

It was pointed out at that time that one of the primary reasons for invoking the priorities system was to conserve the supply of essential materials, and that many industries, though not deprived entirely of the material they might need, would have to go on rations. It followed then that the rationed materials would have to be used wisely and without waste. In the face of a grave national emergency, a realistic view of the problems confronting the government could not accept

as wise or efficient the fabrication of any part of a scarce material into varieties of products that are seldom called for, that complicate the processes of manufacture, swell inventories unnecessarily, and—worst of all—reduce the effective supply of materials.



Another point, significant in its relation to the emergency conditions, was that simplification may be applied quickly, as an emergency measure, in the form of an authoritative regulation, to insure the smooth operation and greater effectiveness of priorities, rationing, and such other procedures as might be deemed necessary to the national preparations for war.

Some of the activities of the Simplified Practice Division at that time were directly tied in with the efforts to conserve scarce materials. An example of this was the project relating to copper electrical conductors, varieties of which were needlessly extended. The recommendation which initiated this project was that cables of more than 500,000 circular mills be not carried as stock sizes for the trade, but should be available on special order only. That would release available copper tonnage for other purposes rather than tying it up in slow-moving inventory items. The place of very large cables thus removed from current stocks would be better filled, from an electrical standpoint, by smaller cables connected in multiple, since research had developed the fact that the larger sizes of wire do not carry as much amperage as was formerly thought to be the case.

Simplification in OPM

When the Bureau of Industrial Conservation was established in the Office of Production Management, to attack waste in all its forms, one of the four divisions set up to accomplish this purpose was devoted to simplification, and during the organization stage it was headed by E. W. Ely, Chief of the Division of Simplified Practice at the Bureau of Standards. This organization followed the precedent of the War Industries Board in 1917 and 1918, when a similar Conservation Division was one of the vital elements of that production program.

A typical instance of the activities of the Simplification Branch in the present emergency, was the appeal to glass-container manufacturers, packers, bottlers, and other users of glass containers, to conserve raw materials needed for war production by simplifying bottle sizes, shapes and finishes wherever possible. A reduction of varieties would permit the more efficient use of manpower, fuel and equipment, besides effecting important savings of critical materials such as soda ash and other chemicals. The plan also called for the use of a greater proportion of large size containers, which would reduce the packaging materials and costs per unit of product and conserve shipping space.

Limitation Orders

The most significant contribution, however, is seen in the adaptation of the principles of simplification in the limitation orders issued from Washington. The preamble to Limitation Order L-42 and the first two schedules of that order, are directly based on Simplified Practice Recommendations made in the plumbing and heating industry. General Preferance Order M-84 on cordage and twine, can be identified as another Simplified Practice Recommendation, on hard fiber twine and lath yarn.

Simplified lists of sizes and varieties, when available, are requested from individual manufacturers in connection with Form PD-25A, when requesting materials in accordance with the Production Requirements Plan. The form includes the statement: "This information must be supported by data retained by the applicant indicating the inventory and requirements of each of these types or sizes . . . Any efforts that have been made by the applicant to conserve, substitute or simplify in order to reduce the consumption of critical materials should be explained in an accompanying letter." This is a direct recognition of the principles of simplification as an aid to the war effort.

The issuance of the simplified form of PD-25A again emphasizes the trend toward the allocation of materials in industry, and brings to the fore, again, the close relationship between simplification of sizes and varieties and the allocation process.

The suggestion of the Division of Simplified Practice that the voluntary simplification programs on bronze and iron body valves, and pipe fittings, be made mandatory through the issuance of Limitation Orders by WPB, was accepted, and the first two schedules in L-42 are drawn directly from the earlier simplification programs. This substantial reduction of varieties was cited fully in Mr. Nelson's report to the United States Senate on February 2nd.

Conservation Order M-81, on cans for fruit and vegetables, is essentially Simplified Practice Recommendation R144-40. This order, which was designed to conserve the supply and direct the distribution of tinplate and terne plate, was issued on February 11th. The related Preference Rating Order, P-115, contains the following paragraph: "Among the largest savings to result from the elimination of tin cans for certain products are: beer cans, which last year used 1,600 tons; pork and beans, 1,440 tons; oil, 275 tons; coffee, 900 tons; tobacco, 200 tons; kidney beans, 200 tons; hominy, 150 tons; dog food, 820 tons."

Some of these regulations are designed to be effective only for the duration of the emergency. But being sound in principle, and offering tangible advantages to industry in peacetime as well, it is not unlikely that they will persist on a voluntary basis after the emergency has passed, and that a great impetus for simplified practice will be felt.

Simplification and Purchasing

The ideal situation for effective simplification would be for every trade association, and every industry, to set a simplification program in motion simultaneously. Each would do its bit, large or small, in conserving scarce materials. The aggregate result would be large, and would facilitate the allocation of materials by WPB, at the same time preventing any one industry from being "starved" disporportionately. Many groups have been wary of such a procedure because of its legal implications, though the proposal is sound in itself. That situation may be changed through Senate Bill 2431, introduced by Senator Van Nuys; that would relieve the situation in respect to prosecution under the anti-trust laws.

Meanwhile, as noted in the opening paragraph of this article, there is a very real application of simplification whenever a consumer limits his purchasing to stock items, and to that extent the consumer benefits from the practice. In the absence of industry-wide simplification schedules, it is a start in the right direction, which will contribute something to efficient management and to the national war effort.

DISTRIBUTORS HELP SPEED WAR PRODUCTION

★ **Purchasing Agents find wholesalers' stocks and services cut red tape, meet delivery deadlines and step up buying**

By A. W. SULLIVAN

Westinghouse Electric Supply Co.

IT SEEMS only yesterday. The salesman walked into the gloomy ante room. Several others were before him. He sat down in the well-worn, slightly bow-legged oak chair farthest from the magic door lettered Purchasing Agent. He set his brief case on the floor, crossed his legs and resigned himself to that waiting job which frayed his nerves and made so many of his working hours non-productive.

Presently the magic door opened; a man with a brief case and a poker face came out and disappeared. The salesman nearest the door got to his feet and went in. The waiting men moved up one chair. Silence reigned, except for the muffled murmur behind the door. The sixth time this happened our hero crushed out his cigarette, grabbed hat and brief case and walked into the Presence.

Nostalgia for the P.A.

The P.A. was a nice fellow. He was patient, pleasant, frequently long-suffering; he knew what he wanted to buy and his job was to buy it at the best possible price. He couldn't afford to be very sentimental. Pleas, cajolings and farmer's daughter stories left him cold when he was naturally cool. Every so often he would order the salesman's chair nailed down so the arm-wavers couldn't gradually hitch too close and swarm all over him.

But he had the last word and he carried the cold chisel and the power of life and death. Much high calibre selling dashed itself to pieces against this armory of defense weapons. For it was a buyer's market in the dear—how dear!—dead thirties. And it seems only yesterday.

Armageddon Once More

But now all that seems as remote as Ninevah and Tyre. Black clouds have moved across the face of the earth and hidden lightning is striking as The Four Horsemen again ride the tornado of war. The world is bleeding at every pore and springtime freshets of blood threaten to engulf civilization while mankind struggles feverishly to erect his dikes and defences.



Is it any wonder that business is being done on an abnormal basis? Gone are the former relationships between buyer and seller, between supplier and customer. Everything is secondary to winning the war. Priorities determine your social standing in business.

Purchasing Agents never have worked so hard and so conscientiously as they are today. Salesmen never before made so many calls, so early and so late. Manufacturers never struggled so hard to produce more and better thews of war. Engineers, builders and contractors never staged such a sprint against Father Time in the erection of air fields, war plants, ships, cantonments. And all this has developed in the past two years. The calm business waltz of 1940 has become boogie-woogie of the purest jive serene.

Enter—The Wholesaler

And, from the general welter, the wholesaler has emerged as an ally of Purchasing Agents and a significant factor in helping to win the war. The electrical field is representative of this new importance of distribution.

During the past 24 months, the demand for electrical apparatus and supplies has mushroomed to enormous proportions. Literally thousands of individual products are necessary to electricity—its generation, transmission, control and use. A single building job may call for wire and cable by the mile, lugs and connectors by the carload, panelboards and circuit breakers by the thousands, motors by the hundreds, lighting fixtures by the acre.

During World War I there was doubt in business and government quarters as to the essential character of the wholesalers' functions in war time. Today, similar rumblings have been heard. In fact, they began in the early defense period when American industry commenced to mobilize for war goods production. If there is a reason for this skepticism, it goes back a good many years.

During the first horse and buggy era, wholesalers were called jobbers. The word was used with a variety of inflections, none of them affectionate. The jobber's lot was not a happy one.

There was only one reason why the jobber managed to evolve into the wholesaler. That reason was his ability to assemble in one place large variety and quantities of products and make them immediately available at the point of use. No one else in the electrical industry could do that. As a result, he became more valuable to both the large seller and the small buyer; and his importance as an economic factor has grown year by year until today he is largely indispensable to electrical dealers, electrical contractors, utilities, industrial plants and commercial institutions.

The Alarm Clock Goes Off

Eighteen months ago, when the Government first turned up the thermostat on defense production, there were no immediate changes. Business ambled along about as usual. There was plenty of time to place an order with a manufacturer of wire or circuit breakers, or lighting, or steel; the stuff would arrive in time for the job. Nobody perspired unduly.

Then, along towards the end of 1940, if you were a manufacturer, whether of defense or civilian goods, you discovered you would have to wait two months for steel, 90 days for this, two weeks for that, no time at all for the other thing. How could you fulfill your building contract or make your product if the materials were delivered on any such cockeyed basis?

Then along came priorities; innocent they seemed too, at first. But, eventually, if you didn't have A-10 or better, you were about as far away from the items you wanted as the South Pole. Even if your priorities were all in a row, there was the little matter of delivery from the manufacturer still to be reckoned with. There might be—sometimes was—a single item, the lack of which could hold up production for days, weeks or months.

Then there were distances. The suppliers of the goods you needed were probably located at all points of the compass, the nearest one 200 miles away, the farthest 2,500 miles. Every one was in a different manufacturing condition—all interesting. They had varying priority schedules to meet. You took your turn and liked it—or else.

The Wholesaler Is Essential

The wholesaler had been doing his unsung stuff all the time but now he began to move down stage and corner some of the show. He was becoming a definite factor in speeding up war production because he could perform duties and give services which were innate to his business alone. These services which had been built up over many years, had proved essential to business because they had sound economic value to the wholesalers' suppliers and customers. Now they became essential to the war program in its time of need.

The wholesaler is speeding up war production because he is saving precious time on war jobs. Every day the record of sales and what those sales accomplish prove it.

He is saving days, weeks and even months because he can supply and get materials to a job faster than any other source. Can a construction engineer in the throes of building an emergency war plant—and under contract to finish by a specific date—place a panic-order for 68 priority items with nine different manufacturers located from hell to breakfast and hope to get the stuff in time? He cannot—but definitely. Yet an electrical wholesaler called on to fill that order delivered all 68 items in 3 days when the earliest complete delivery from all manufacturers was 12 weeks.

Proof Piled Upon Proof

The cases where the electrical wholesaler has contributed to faster war production literally run into the hundreds. A plant making explosive compounds received a 2-day delivery of explosion-proof conduits and circuit breakers. Without the electrical wholesaler, a wait of from 8 to 15 weeks would have been necessary. An air depot got 50 floodlights from an electrical wholesaler the same day the order was issued, after another source had failed to meet a 15-day delivery promise. Shipment of 55 miles of conduit for a war plant started within 24 hours after the electrical wholesaler got the order. Best delivery from any other source was 5 weeks to start.

A machine that would release 20 men for war production work stood idle for want of wire. Best delivery from manufacturers was 5 to 8 weeks. An electrical wholesaler delivered the wire the following day. A manufacturer of cartridges received immediate delivery of transformers and miscellaneous electrical equipment. Without the wholesaler this would have taken 90 days.

Purchasing Needs Distribution

Purchasing executives are vitally concerned with the methods of distribution because the performance of their function depends on getting the purchased materials when and where they are needed. Traditional prejudices and theoretical analyses of policies are secondary to the all-important consideration of delivery. A source of supply is where you can get the goods. When the evidence establishes the wholesaler as a type of supplier who can deliver the goods—and fresh examples could be added every day to those cited above—then the wholesaler takes rank as a factor of prime importance in purchasing. Add this to the *prima facie* evidence that manufacturers have found such distribution to be the economical and efficient means of getting their products to market, and you are dealing with fact, not theory.

The One Test for Every Decision—

"Will It Help to Win the War"

★ ★ ★ ★ ★ *The*

SUBCONTRACTING

★ **The old problem of "Manufacture or buy?" has especial significance in these days when total production capacity should be put to work**

By WILLIAM R. HILTON

SUBCONTRACTING is the practice on the part of a prime contractor of securing from suitable suppliers—subcontractors—such parts of services as he needs to fulfill his agreement. In practice a subcontract may secure any of a range of items from machined parts, stampings, forgings, subassemblies or even completed units to mere machine hours of boring, or grinding. In general it permits the breaking down of a primary task into its component parts, and the so-called "farming out" of those parts to capable agents.

Contrary to common belief, subcontracting is not a new and unusual practice which offers itself as the miraculous answer to our present defense mobilization problem. Rather, it is a past accepted practice in industry, which is afforded unusual fields of application at the present time. These opportunities are coincident with the sudden rapid expansion of the airplane, tank, and munitions industries, and the resultant secondary demand for machine tools and equipment.

Subcontracting, properly handled, may be immeasurably helpful to the present defense effort by spreading the burden of production, and by utilizing more and smaller resources, thus speeding the procurement of sorely needed goods. It is well to point out, however, that these desirable results are not gained without overcoming many undesirable elements which should be considered in terms of the general application. Too much of the present discussion of subcontracting is unrealistic in its approach to and treatment of these contingent problems. Before accepting too glibly the overemphasized advantages of this method of procurement, it is well to concern ourselves with the weaknesses, and limitations of the problem in order that a sound approach to subcontracting may be taken.

Why Subcontract Work?

Subcontracting is in many respects a boom year phenomenon. It receives most favorable attention in times of increasing or unusual business activity. Such times may be characterized as (1) when industry is approaching abnormal levels of operation and companies are faced with the problem of expanding capacity, machinery, personnel, or labor, or (2) periods of unusual business activity such as during the present defense drive, when time is the important consideration, because industry is saddled with a demand for far more material than it is possible for them to produce with existing utilized capacity, or with expanded plants in the near future. Such peaks occur only rarely, and for that reason it is hardly economical to expand plant or equipment to cover the actual current needs.

There are, at the outset, two major reasons offered for the practice of subcontracting. Briefly, they are as follows:

a). to save time in procuring the necessary material, parts or services, by calling on available capacity which can be immediately adapted to the job.

b). to avoid the necessity for overtime, multishifts, additions to plant, equipment, or personnel when production reaches such levels that this is necessary.

These are by no means the only reasons for subcontracting. In addition, it is desirable to mention the following reasons for wishing to subcontract work.

a). to secure items requiring specialized techniques or machines.

b). to secure items of small volume which would involve more attention and space than their worth, and which could be better procured elsewhere.

c). to secure items which are secondary and which require research and development which you are not prepared to give them.

d). to secure items which offer slim profit margins on which you may wish to shift the risk.

e). to secure items which can be produced more cheaply elsewhere, either because of (1) volume or (2) nature.

Subcontracting to Save Time

The decision to subcontract, when time is an important consideration is characteristic of numerous situations. Frequently the condition exists that to do a job which has been contracted for, will involve expanding plant or acquiring new machines, personnel, or techniques. Such expansion takes time, and if, as presently, there is a scarcity of skilled labor, and machine tool or equipment deliveries are slow, if not impossible, with contracting facilities virtually monopolized, it may be that a disastrously long period of waiting will be involved in getting the item into production.

If, as in the case of plane motors, tanks or machine tools, the lack of such parts may mean the stalemate of all production for defense, any reasonable alternative should be taken to avoid this delay. By subcontracting

the work, split into smaller units, to smaller shops and segregated, less congested manufacturers, this result is obtained, and the immediate production of the various needed items is speeded. The parts can then be shipped to the prime contractor's factory for assembly, and the contract deliveries are met on schedule, or in advance of the predicted deadline, without the anticipated waiting. Moreover, more facilities which would otherwise not have been used have been brought into the operation, and the demand for machine tools or equipment has been reduced from the number initially needed by the amount enlisted. Under these conditions, subcontracting has not only saved time, but effort and capital outlay as well. The whole manufacturing process is at the same time speeded up.

Subcontracting to Relieve Plant Burden

Subcontracting is frequently seen as an alternative to adding hours (overtime), extra shifts, or increasing plant, equipment, or personnel as demand increases.

It appears rather obvious that if a company has sufficient work to keep it busy only part of a regular work week, there is no point to looking outside for additional productive capacity. If, however, a plant with one shift has not only sufficient work to keep that shift busy, but also enough more to require considerable overtime operation, it is approaching a danger zone of operations. First of all, the overtime working hours are being paid for at increased wage rates which may eliminate the profit on this work. Secondly, such an overload on a one shift crew may mean the start of concerted labor trouble, since the plant is more vulnerable to strike or holdup, particularly if some of the departments are pressed for delivery. In such an instance, it may well be possible to relieve the work force of a part of this load, thus restoring normal operations. The output of the plant will then be measured by the regular output plus subcontracted work, but the additional burden of overtime is eliminated.

Adding an extra shift to a plant's operations is not an easy job under any circumstances. It means hiring and training new men, new supervisors, and in some instances new executives. In many instances, it means considerable increase in costs, particularly if the training expense is substantial, if supervisory costs go up, or if maintenance, heat and light are increased. Furthermore, the efficiency of crews on extra shifts is apt to drop considerably, particularly when the third shift is added. For this reason the management problem becomes more complex, and any means of combating it is desirable.

Aside from the personnel aspect of unlimited expansion, there is the consideration of capital outlays for plant, equipment, land and services. The unusual demands of the present may justify the building of additional capacity, but in the long run, when such unusual demand as may temporarily exist subsides, the manufacturer does not wish to be burdened with thousands of dollars of unusual capacity which is but a liability on his books. Under these conditions it is natural to expect him to look for means of procuring the necessary material elsewhere. In the long run, too, avoidance of heavy capital outlays of any sort leaves the company with greater flexibility and adaptability to change.

Subcontract Special Jobs

The average manufacturing business is concerned with putting out a product for which it usually has the proper personnel and equipment to do most of its own work. However, there are usually specialized jobs or parts which require unusual skills, particular machines, or expert handling. Under such circumstances, a manufacturer may find it desirable to go outside his business to gain the counsel of a particular company which specializes in this work. Some will be found which specialize in boring, others in heat treating, others in casting, grinding, or polishing. Moreover, these shops are willing to take the work of the manufacturer, and by so doing reduce their own costs of operation below normal levels.

Subcontract Small Order Parts

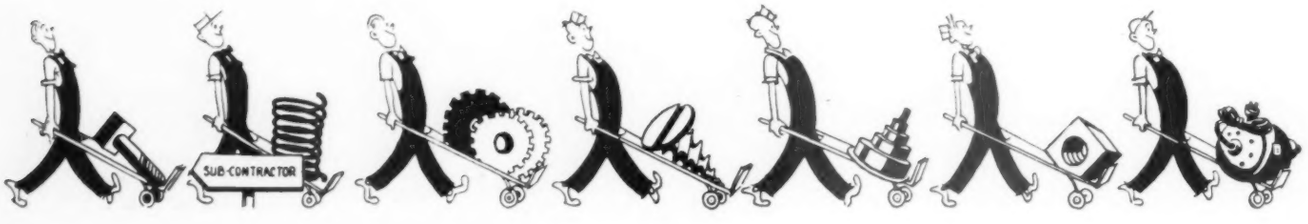
Another cited reason for wishing to subcontract work is for the purpose of procuring small products which can not be handled economically or conveniently. Few plants turn out a single assembled product. It is more generally true that they turn out a number of products made up of a quantity of individual parts, which may or may not be common to many of the machines. Those common to any number of the machines will, of course, be required in considerable quantity. Those which are used only in one or two machines, on the other hand, will be very limited in total number. Because the cost of setting up to make these parts is often excessive, or because they require a greater than proportionate share of the attention of the plant staff, it is desirable to procure them outside, where they may be not only cheaper, but better produced.

Subcontract Secondary Work

Still another complete classification of items which may be sublet are those which require a marked amount of research and development to keep them abreast of changes in design, techniques of making, make-up, and the like, which the company cannot afford to give them. Because the company must of necessity concentrate on its major line of products, it is forced to let these parts care for themselves. The result is twofold; either the part becomes obsolete of neglect, and fails to keep up to a competitor's equivalent, or it receives just enough attention that the job is not adequately developed and fails in operation. It is obvious that the most practical manner in which such parts can be treated is to turn them over to a potential supplier who makes this item as his major product, who can carry on the necessary work as it is required. Such items as landing gears, and control assemblies are examples of this type of work.

Subcontract Unprofitable Business

Many prime contractors at times find themselves faced with more work than they are able to handle, some of which is highly profitable as compared to the



balance, which may offer very slim margins. Under these circumstances it is not unreasonable to expect the contractor to transfer the burden of such work to suppliers interested in handling it, or to attempt to find suppliers who are known to be proficient in this particular type of work. This maneuver not only protects his financial interests, but permits concentration on the more profitable work. While this sort of thing can lead to abuse, it is justified so long as the contractor realizes what he is doing, and is not trying to mislead his chosen supplier.

At the present time, the government agencies are impressed with the number of small shops which are inaccessible on such larger orders, and is considering making farming out of a set percentage of all orders compulsory. Up to now they have relied upon the workings of their voluntary advisory organizations, the Defense Contract Service, and the other means at its disposal for influencing such behavior. When compulsory conditions exist, of course, the contractor spends little time in analyzing why he should subcontract any job, but attempts to get that work done which will benefit him the most.

There is nothing to prevent a contractor from having all his work done outside if he wished. If cost was not a consideration, or if he was not concerned with controlling the quality, quantity, delivery, or the appearance of performance of his product, this might be an acceptable practice. In the long run, however, the fact that most manufacturers have standards, and wish to control rather closely the quality and other characteristics of the product, results in a manufacturer subcontracting only that part of his work which he is confident of getting advantageously outside.

There are several general characteristics which a job must possess in order to be eligible for subletting. First of all, the job must be of such a nature that it can be described in drawings, by sketches, in writing or by an actual sample, in such a manner that it can be transmitted to the subcontractor and understood by him. Secondly, the work must be of such a nature that facilities can be found with machines, labor and supervisory personnel to do the job. Thirdly, the materials for the work must be available to this agent. In the fourth place, the "know how" or knack of the job must be capable of being assimilated in a reasonable period. Lastly, upon completion, the contractor must have the means and the ability to deliver the goods to the prime contractor in an economical fashion on regular schedule.

Choosing the Supplier

One of the most difficult tasks which faces the prime contractor is that of choosing the supplier. This entails on his part much concentrated work, a certain amount of shopping around, and if he is not set up to do it, considerable expense and time consumed negotiating.

With past experience on the subject, it is probable that he can approach the job from his own file of available and satisfactory suppliers which he has built up in the past. Without it, however, he has access to several of the government agencies. At the present time, the Defense Contract Service, for instance, has officers in all the Federal Reserve district headquarters, and in many smaller cities. At these places are available files of manufacturers who have available capacity and are potential suppliers. Information relating to the plant capacities, adaptability, past work, staff, equipment, personnel, etc., is tabulated and such other information as is desirable in lining up facilities. In the event the manufacturer has had relations of this sort in the past, and has his own listings, it is probable that a good deal more knowledge is available, and the results of past relations will serve as a test of the manufacturer's ability to handle equal or larger orders.

The contractor is interested in the potential supplier's plant, whether new or old, efficient or otherwise, its accessibility to his plant and to a source of supply. Within the plant the contractor is interested in the type, quality, and number of machines which are available, and the sort of work for which they are best suited. The plant must not only have the machines but they must be of such type and in such repair that the work done on them will be produced economically and with a sufficient degree of accuracy. In such cases the ruling conditions may likely be the skilled labor and operators that are available to run the machines.

Management Is Important

The ability of a plant to turn out a particular item may be judged in part by the characteristics of the business in which it is primarily engaged. In other words, plants which have been connected with certain types of industries may be expected to do work requiring a certain set of techniques. Plants which have had little experience with castings would be very poor suppliers of castings, while shops that had worked with castings would be unaccustomed to machinings. Similarly, plants which had worked with nonferrous metals would be much better prepared to handle work using these metals than any of the steels. Plants which had worked on parts for an industry requiring precision, and small tolerances, would be far better chosen as a supplier of airplane motor parts, than a plant which had been making wheelbarrows.

Just as important as the machinery, labor, and experience of the particular plant is the supervisory and management staff, which is available to line up work. In addition to the knowledge of the work and the experience, these men must, perhaps, be capable of assimilating new techniques and methods which may be required to adapt the present plant to the new work. One of the factors which has apparently held up subcontracting in the present emergency is the lack of supervisory and administrative men. Even though large quantities of plant capacity, machine capacity, and labor have been found to exist in small plants, there is a decided lack of men who can take these potentials, contract for work and handle it properly.

A new group which might be considered should be mentioned. As contrasted to certain plants, certain



communities have come forward as potential suppliers of sublet work. They are usually formed by a pooling of the available resources in a given community—many times an impressing list—which is managed through some form of local council which may or may not have an appointed manager.

The accessibility of a potential subcontractor to the prime contractor's plant is another factor which must receive considerable study. Distance means shipping cost and adds to the control problem of the subcontractor's home office. Not only is it desirable to have the subcontractor's plant fairly close to the home plant, but also it should be easily accessible for the necessary transfer of materials and information between plants.

The subcontractor should also have access to the materials which he will need to do the work, in event the prime contractor is not supplying the components. Mechanically this may mean two things: his ability to contract for these materials, and his ability to get them to his plant. In the first instance, it may be possible for the party to get his materials without aid. However, in event that the materials are strategic, and a priority rating is needed, as at the present time, it is desirable to know what sort of organization he has to do this, or how well he rates in Washington. If for any reason he has had trouble with these relations in the past, there may be slight trouble in getting the actual material allocated to him for the work. Aside from his ability to get ratings, it is highly desirable to check the credit and banking reltaionships in order to assure the prime contractor that the plant is not going to be held up in legal credit troubles, by bankruptcy, or the like.

It appears, therefore, that the mere existence of idle machine capacity is not a criterion upon which you can judge the ability of a potential supplier. Rather, it may be a fact upon which to look suspiciously. It is necessary to rely upon several other factors which will qualify the particular plant's capacity and which will be of far more use in sizing up the potential subcontractor's ability to do the job, which is concerned. It is because so great a part of the available capacity today is undesirable, from the prime contracting agent's point of view, that so much apparent capacity exists.

Costs Go Up

Subcontracting costs money. In addition to the cost of the item procured—whose cost may or may not be above the cost (including overhead) of the prime contractor—there are other factors which run up the expense. The prime contractor's staff must be supported, and this in itself will be large if the job is to be done properly. There will be investigations, correspondence, and surveys. Contracting men will entail additional expense for telephone and telegraph and a large amount for traveling. The expense of technical men to get the subcontractor's plant running will be considerable. In addition, there will be extra expense for duplication of tools, plans, and fixtures, and patterns, supplied the subcontractor. The job will be done and because you want good inspection—100% in all probability—this cost will be increased. Finally, delivery and shipping expense will be added to the cost of the item at your plant. Added together, these items indicate quite a total of extra expense which subcontracting has cost you.

While it does add to your cost of operation, perhaps this is not a fair criterion on which to judge the purchasing efficiency. Failure to get an item is costly to a plant working to capacity on other work. Holdups, delays, storings of half-finished materials, extra handling on work in process because a part is not at hand add materially to costs. In the same token, use of overtime, inefficient machines, or other methods to procure an item which is needed, will likewise add to the regular cost of the item to judge the efficiency of the part procured by subcontracting. Such a comparison may show favorably for this means of purchasing.

One other cost which is involved must be considered. That is the cost of carrying surplus machinery and plant in periods of slack. The burden of frozen capital, which is unusable, is of great importance to companies attempting to maintain stable and profitable operations at all times. If by subcontracting the investment can be avoided, it is desirable to do so.

In conclusion, therefore, while costs of subcontracting bulk large, they are in part offset by the added costs which would be entailed if the present plant were used to do the work, or if additions were made which would be a burden later. Because price in these periods is not a consideration, being in part set by demand, which is excessive, there is no inherent loss to the prime contractor, but perhaps greater profits from his percentage of the total volume produced. This is particularly true in times when the profit limit on orders is set in percentages of dollar volume.

This paper was awarded one of the Boffey Memorial prizes in the 1941 Students' Educational Contest sponsored by the National Association of Purchasing Agents. The author competed as a student in the Harvard Graduate School of Business Administration.

The One Test for Every Decision—

"Will It Help to Win the War"

"Production Begins With Purchasing"

27th Annual Convention of the

NATIONAL ASSOCIATION

OF

PURCHASING AGENTS

Waldorf Astoria Hotel, New York
May 25-26-27, 1942



S. T. EDGERTON
Division Purchasing Agent, United States Rubber Company
General Chairman of the Convention Committee

THE most important three days in the history of industrial purchasing! That is no exaggeration of the significance of the 1942 convention of N. A. P. A., no promotional "build-up." It's the plain fact.

"Purchasing's Part in Victory" is the theme. War production—production for Victory—is the problem of the moment, in industry and in our national life, and production begins with purchasing. Materials in a steady flow, intelligently channeled to the point of most urgent need, and efficiently put to use, are the basis of our national effort. Skillful procurement is the beginning of the cycle that will keep the wheels of industry spinning to turn out the vital equipment and supplies needed to support our troops in the field, in the air, on and under the sea. Materials will swing the balance to complete and decisive victory for the Allied Nations and for the principles that America represents.

Washington is literally coming to New York for this convention. The leaders of WPB and OPA, in person and with key men from their respective staffs, are taking time out from crowded schedules to talk with purchasing executives and to answer their questions. There could be no more eloquent testimony of the importance which is attached to this meeting in official circles. It is a tribute that has been accorded to no other business or industrial group. It is an opportunity which no purchasing man can afford to miss.

CONVENTION COMMITTEE CHAIRMEN



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Vice Chairman



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Vice Chairman



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J. H. BROADBENT
Ladies Entertainment



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Reception



D. M. MEEKER
Service



R. M. MORRISON
Transportation



B. OBST
Publicity



J. H. EWING
Golf



G. F. PLATE
Information

★ ★ ★ ★ ★ ★ ★ DONALD M. NELSON DAY ★ ★ ★ ★ ★ ★ ★

Monday, May 25

PROCUREMENT
★
PRIORITIES
★
PRODUCTION



DONALD M. NELSON
Chairman, War Production Board

MORNING SESSION

Address, "N.A.P.A. is in the Service—for the Duration," by F. Albert Hayes, President of the N.A.P.A.

Address, "The Victory Program is Industry's Program," by Walter P. Fuller, Chairman of the National Association of Manufacturers.

Address, "Production Wins Battles," by Donald M. Nelson, Chairman of the War Production Board.

Discussion of Army and Navy Procurement Policies and Procedure, by Staff Executives.

AFTERNOON SESSION

Forum on Priorities, Inventories, Allocations, and the Production Requirements Plan
Presiding Officer, F. J. Heaslip, Purchasing Agent, Fairbanks, Morse & Co., Chicago

Your questions will be answered by:

John H. Martin, Bureau of Priorities—Policy
Laurence J. Martin, Bureau of Priorities—Inventories and Compliance
A. L. Williams, Bureau of Priorities—Production Requirements Plan
C. S. Griswold, Bureau of Priorities—Orders and Allocations
A. A. Walker, Department of Munitions and Supply, Canada
Captain Frank Chambers, Army and Navy Munitions Board, U. S. A.

PURCHASING PROBLEMS OF TODAY

Tuesday, May 26



THOMAS D. JOLLY

Director of Purchases and Chief Engineer
Aluminum Company of America
Past President, National Association of Purchasing Agents

GENERAL SESSION

Presiding Officer. H. Leland Weber, Purchasing Agent, Fibreboard Products, Inc., San Francisco.

Address. "Substitute and Synthetic Materials," by Col. George S. Brady, Chief, Division of Substitute Materials, Board of Economic Warfare.

Discussion. led by C. F. McAuliff, Purchasing Agent, Texas Electric Railway, Dallas.

Address. "Conservation of Materials Through Emergency Specifications," by C. L. Warwick, Chief, Specifications Branch, Bureau of Industrial Conservation, War Production Board.

Discussion. led by Fred C. Irwin, Purchasing Agent, Canada Wire & Cable Company, Toronto.

Address. "Wartime Conversion and Subcontracting," by William T. Roach, Production Manager, Eastman Kodak Company, Hawk-Eye Works, Rochester.

Discussion. led by Norton A. Mears, Vice President in Charge of Purchases, RCA Manufacturing Company, Camden.

Address. "Construction and Expansion of Plants," by Thomas D. Jolly, Director of Purchases and Chief Engineer, Aluminum Company of America, Pittsburgh.

Discussion. led by J. J. Sharkey, Purchasing Agent, Western Cartridge Company, East Alton, Ill.

★ ★ ★ ★ ★ LEON HENDERSON DAY ★ ★ ★ ★ ★

Wednesday, May 27

PRICE CONTROL ★ RATIONING



LEON HENDERSON
Administrator
Office of Price Administration

MORNING SESSION

Administrator, Office of Price Administration

Presiding Officer, George E. Price, Jr., Purchasing Agent, The Goodyear Tire & Rubber Company, Akron.

Address, "OPA Activities," by J. K. Galbraith, Deputy Administrator, Office of Price Administration.

Address, "OPA Procedure," by David Ginsburg, General Counsel, Office of Price Administration.

Address, "OPA Policies and Objectives," by Leon Henderson, Administrator, Office of Price Administration.

Address, "Co-operation Will Not Be Rationed," by Paul G. Hoffman, President, The Studebaker Corporation, South Bend, Ind.

AFTERNOON SESSION

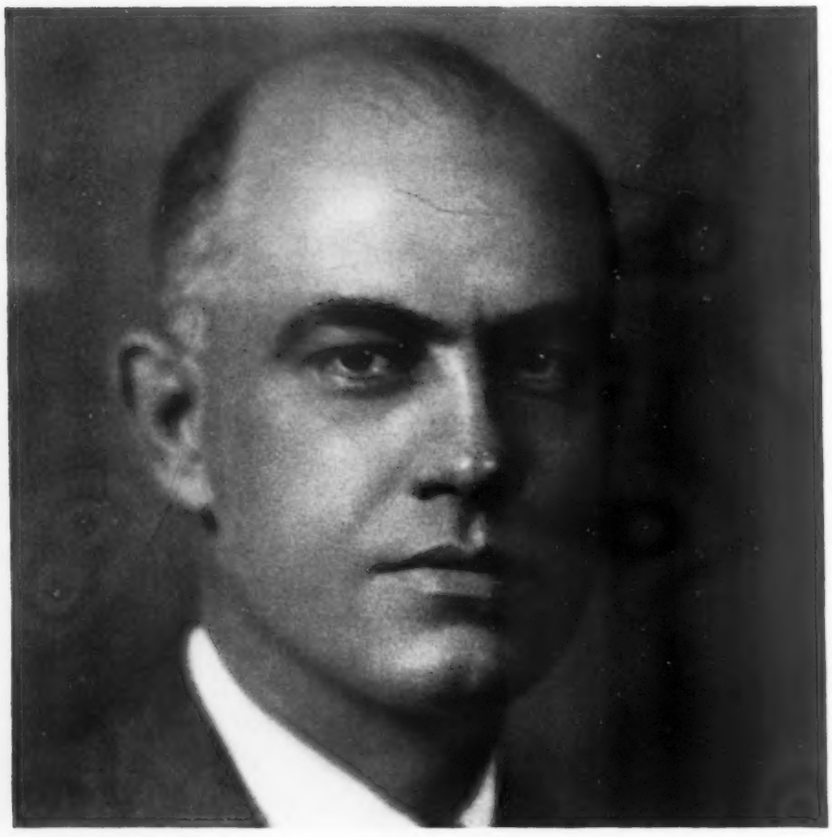
Forum on Prices and Rationing

Presiding Officer, Donald G. Clark, Purchasing Agent, Gulf Oil Corporation, Pittsburgh.

Your questions will be answered by:

John E. Hamm, Deputy Administrator, Office of Price Administration
K. W. Taylor, Secretary, Canadian Wartime Prices and Trade Board
Donald Wallace, Assistant Administrator, Office of Price Administration
Paul M. O'Leary, Assistant Administrator, Office of Price Administration
David Cobb, Assistant General Counsel, Office of Price Administration
Sylvan L. Joseph, Regional Director, Office of Price Administration, New York

GROUP AND COMMITTEE MEETINGS



GEORGE A. RENARD

Executive Secretary-Treasurer
National Association of Purchasing Agents

TEXTILE COMMITTEE

Presiding: Harold A. Johnson, Chairman of N.A.P.A. Textile Committee; Division Purchasing Agent, United States Rubber Company, New York.

Forum and Discussion on Textiles, led by Col. T. W. Jones and Col. Vere Painter of the Philadelphia Quartermaster Depot, U. S. Army.

CHEMICALS and ALLIED PRODUCTS

Presiding: E. J. Parent, Chairman of the Group; General Purchasing Agent, The Mathieson Alkali Works, Inc., New York.

Address, "The Silver Lining to Substitutes," by William Haynes, formerly Editor of *Chemical Industries*.

FUEL OIL FORUM

Presiding: Millard W. Merrill, Chairman of N.A.P.A. Fuel Oil Committee; Purchasing Agent, United States Metals Refining Company, Cartaret, N. J.

Discussion, "Fuel Oil Transportation Problems," led by James P. Patterson, Marine Manager, Pan-American Petroleum & Transportation Company, New York.

PUBLIC UTILITY BUYERS

Presiding: Fred A. Compton, Chairman of the Group; Purchasing Agent, The Detroit Edison Company, Detroit.

Address by J. A. Krug, Chief, Power and Communications Branch, War Production Board, Washington.

Discussion, "Priority Problems Affecting Utilities," led by Walker L. Cisler, Priority Section, Power and Communications Branch, War Production Board, Washington.

GROUP AND COMMITTEE MEETINGS



F. ALBERT HAYES

President, National Association of Purchasing Agents. Purchasing Agent, American Hide & Leather Company, Boston.

COAL FORUM

Presiding: Thomas W. Harris, Jr., Chairman of the N.A.P.A. Coal Committee; Division Purchasing Agent, E. I. du Pont de Nemours & Company, Wilmington, Del.

Report of the Coal Committee, by T. W. Harris, Jr.

Discussion, "Coal Supply and Transportation Problems," led by O. L. Alexander, President, Pocahontas Fuel Company, New York.

Open discussion in which questions on coal requirements and problems will be answered by the speaker and committee members.

SHIPPING CONTAINERS

Presiding: Charles L. Sheldon, Chairman of the N.A.P.A. Paper Shipping Container Committee; Purchasing Agent, Hood Rubber Company, Watertown, Mass.; Deputy Chief, Containers Branch, War Production Board.

Question and answer program, in which questions will be answered by:

Douglas Kirk, Chief, Containers Branch, War Production Board.

Albert W. Luhrs, Chief Consultant, Containers Branch, War Production Board.

Dr. Julian H. Toulouse, Chief, Glass Section, Containers Branch, War Production Board.

Thomas J. Beirne, Chief, Tin Section, Containers Branch, War Production Board.

Charles Dailey, Jr., Chief, Steel Section, Containers Branch, War Production Board.

William W. Fitzhugh, Chief, Folding and Set-Up Box Section, Containers Branch, War Production Board.

Neil A. Fowler, Chief, Wood and Fabric Section, Containers Branch, War Production Board.

J. W. Rankin, Priority Specialist, Containers Branch, War Production Board.

★ ★ ★ PREVIEW OF THE

ACME STEEL COMPANY

Chicago, Ill.—Booths Nos. 252 and 253

A staff of men experienced in the packing and shipping practices required by the Government for war material and equipped with the knowledge of essential specifications for export shipments . . . will be available to advise manufacturers in the most effective and economical ways to reinforce all types of shipping packs including carload loadings. These men are now actively engaged in working with Government authorities, carriers and war material producers . . . to assure safe arrival of thousands of products. To be demonstrated in the Acme booth are one-piece Steelstrappers for the speedy application of steel strapping . . . also Acme Silverstitchers closing corrugated and fiber containers with stitching wire.

AMERICAN EMBLEM COMPANY, INC.

Utica, N. Y.—Booth No. 370

Are you looking for a plant especially equipped to produce metal stampings?

See the samples on display at Booth 370 . . . from small simple pieces to complicated parts produced to exacting specifications. Volume production facilities, manned by experienced engineers, will speed deliveries. American Emblem engineers would like to discuss subcontracting possibilities with you.

Photographic employee badges, produced to rigid Federal specifications, will also be on display. Inspect the tamper-proof badges that have been approved by the Government War Agencies. Talk over your identification problems and requirements with representatives at the Booth.

See the complete array of Military Insignia, produced to War Department specifications.

AMERICAN OIL & SUPPLY CO.

Newark, N. J.—Booth No. 12

An Exhibit of timely interest will be displayed at the company's booth, featuring principally rust-proofing and anticorrosive compounds, highly essential in the present National Defense program. Specimens exhibiting the application of these products will be on display and representatives will be available to discuss your particular problems.

BARRETT-CRAVENS COMPANY

Chicago, Ill.—Booth No. 254

In presenting its Materials Handling and Storing Equipment, the Barrett-Cravens Company will feature a map of the United States on which 80 cities containing Barrett representatives are shown in electric lights, and a rotating wheel showing the complete line of Barrett Equipment.

This display vividly portrays the nation-wide coverage with the complete line which includes Lift-Trucks; the new Nifty Lifter and Platform; a Portable, Electrically-operated Elevator—all designed to save time, space and money through more efficient materials handling and storing.

BENJAMIN ELECTRIC MFG. COMPANY

Des Plaines, Ill.—Booth No. 363

Light for speeding up defense work and floodlighting as a means of protection against sabotage of industrial plants will be the theme of the Benjamin exhibit.

Featured in the Benjamin exhibit will be fluorescent lighting equipment in a variety of styles and explosion-proof and Type II-G dust-tight incandescent lighting equipment suitable for use in certain types of hazardous atmospheric locations. Standard types of industrial incandescent lighting units will also be on display.

Calling and warning systems utilizing Benjamin Signaling Equipment will also be featured.

BUSSMANN MFG. COMPANY

St. Louis, Mo.—Booth No. 358

Particular emphasis will be placed on BUSS fusetrons, BUSS Fustats and BUSS Super-Lag fuses. These products fit clearly into today's picture of "uninterrupted production at top speed"—since they go a long way toward eliminating all useless shutdowns due to needless blowing.

CLEVELAND CONTAINER CORPORATION

Cleveland, Ohio—Booth No. 369

Paper tubes and shipping containers, specially designed for the protection of fragile parts in transit, aiding the war effort by avoiding the hazards of breakage during transportation and insuring safe deliveries. A wide variety of applications will be on display.

CONTAINER CORPORATION OF AMERICA

Chicago, Ill.—Booths Nos. 255 and 256

Will display various types of paperboard, corrugated and solid fiber shipping containers and folding cartons. The exhibit will indicate the great variety of uses to which these materials and containers can be put, including many items under the war needs category.

COPPERWELD STEEL COMPANY

Glassport, Pa.—Booth No. 242

In an animated display the principal features of the Copperweld manufacturing process will demonstrate that Copper-covered steel (Copperweld) has many possible applications to replace solid copper, bronze and brass and how hundreds of tons of copper can be saved in this way. Information on such applications may be obtained from the company's representatives at their booth—No. 242

CRANE CO.

Chicago, Ill.—Booths Nos. 249 and 250

In a desire to co-operate 100% with the "All-Out" production program, every item of Crane production is being used to fill essential orders. This precludes any mass display of Crane valves and fittings or the delay in delivery of finished valves even for such a short period of time as would be required to exhibit them at this convention.

This year—replacing mass display of new and regular line products—the Crane booth will feature information of importance to all purchasers of valves and fittings.

Questions on priorities, deliveries, and possibilities of substitute products will rate AA-1 in booths 249-250.

DICTAPHONE CORPORATION

New York, N. Y.—Booth No. 118

Dictaphone Cameo dictating, transcribing and shaving machines, featuring exceptionally true sound qualities, high quality of materials and construction, and convenience of operation. First aid for the busy executive and for efficient office procedure in these days of increased pressure. The equipment includes desk and cabinet models. Also the Telecord electric conference recorder for continuous recording of speeches, lectures, conferences, telephone conversations, etc., providing a permanent and accurate record.

JOSEPH DIXON CRUCIBLE CO.

Jersey City, N. J.—Booth No. 129

You'll find a bright spot of the show this year is the spacious Dixon booth. Besides friendly handshakers there to greet you, an absorbing batch of exhibit material to interest you . . .

INFORM-A-SHOW ★ ★ ★

there's the welcome sight of easy chairs to relax in! Of course, Dixon does it again with ingenious and instructive exhibits on its famous pencils, paints, lubricants, crucibles and graphic products. Make a date to meet your friends at the Dixon booth.

EAGLE PENCIL COMPANY

New York, N. Y.—Booth No. 235

In any year, it is to the interest of the Purchasing Agent and his firm to buy those products which are demonstrably most economical in *service*. Such selection is doubly important in 1942, for longer-lasting products simplify problems of supply and conserve raw materials for the emergency.

This year, with better reason than ever, the Eagle exhibit will demonstrate the virtues of their top-quality line: TURQUOISE Drawing Pencils, VERITHIN Colored Pencils . . . and MIKADO Writing Pencils, now *Certified* stronger pointed, smoother writing and longer wearing, with a money-back guarantee.

Eagle salesmen at the booth will be glad to consult with you on your stationery supply problems, explaining the changes made necessary by scarcities and Government restrictions, and suggesting solutions to your difficulties.

EUTECTIC WELDING ALLOYS, INC.

New York, N. Y.—Booth No. 8

Castolin Eutectic Alloys for the Low Temperature Welding Process for cast iron, steel of all analyses, copper, brass, bronzes, nickel, monel, aluminum and alloys, magnesium, and die castings, will be presented.

The use of the Low Temperature Process in production of fabricated parts and assemblies, tools, etc., and for reclamation of defective foundry castings and machine parts, and for maintenance work, will be featured.

The exhibit will show how the Low Temperature Process is beneficial due to the lower temperatures involved, which results in less distortion, warping, and alteration of the metal structure. Welds are machinable, color matching, and have very high physical properties.

This process with Castolin Eutectic Alloys will be demonstrated and numerous welded parts will be displayed.

EBERHARD FABER PENCIL CO.

Brooklyn, N. Y.—Booth No. 115

At booth No. 115 you'll find an interesting and informative exhibit featuring Mongol Black and Colored lead pencils—with a message that no pencil buyer should miss. There are some mighty important reasons why "a MONGOL buy is a better buy." Learn why MONGOLS actually cost less than cheap pencils and how they save the time—cost of work, interruptions in countless busy offices. And there's a story about the versatility of MONGOL Colored Pencils that's worthy of your time.

FEDERATED METALS DIVISION AMERICAN SMELTING AND REFINING COMPANY

New York, N. Y.—Booth No. 116

Look for this exhibit in Space 116. There will be a display of the Nonferrous Metals produced in this organization's several plants.

Substitutes: An interesting exhibit of low tin solders and babbitt, designed to meet your requirements and to comply with Tin conservation orders.

GARLOCK PACKING COMPANY

Palmyra, N. Y.—Booth No. 114

A full line of mechanical packings—asbestos, rubber, metallic and fibrous—for all industrial purposes. High pressure packings; for sealing fluids, gases, and chemicals. Molded parts of rubber and synthetics. Leather products related to the packing industry.

GAYLORD CONTAINER CORPORATION

St. Louis, Mo.—Booth No. 134

Manufacturers of Corrugated and Solid Fiber Shipping Cases, Folding Cartons, Kraft Wrapping Paper, Grocery Bags, Sacks and Kraft Specialties.

Gaylord Container Corporation has sales offices and factories in many cities and will be glad to welcome their many friends located throughout the United States.

Samples will be on hand and those in attendance will do their best not alone to demonstrate but also to explain the present paper situation particularly as it applies to the lines they manufacture.

GLOBE WOVEN BELTING CO.

Buffalo, N. Y.—Booth No. 368

Solid woven cotton belting specially adapted for lighter conveyor applications; Kanry-Tex, a sanitary, odorless, washable belt for the food industries. Endless woven belts, made in one continuous piece, eliminating stretch and slippage; used on grinders, drill presses, woodworking machinery, polishing, and other equipment where a smooth, strong, flexible belt is required.

THE HINDE & DAUCH PAPER COMPANY

Sandusky, Ohio—Booths Nos. 247 and 248

The subject of shipping boxes is an extremely important one today. War materials, from corrugated iron for barracks to fine screw machine products, require the best carriers obtainable to assure not only safe delivery, but to avoid damage to and loss and waste of critical materials. Time is all too short and materials much too valuable to gamble with either.

In spaces 247 and 248, you will see an interesting display of shipping boxes designed to carry shells, fuses, timers, floodlights and many more war materials.

Booklets on "How To Seal" and "How To Load" corrugated boxes will be available.

HUMASON MFG. COMPANY

Forestville, Conn.—Booth No. 372

Springs and screw machine products, metal stampings, wire forms and assemblies, will be shown in wide variety. Long experience in the production of industrial requirements to customers' specifications, and excellent modern automatic equipment, are placed at the service of American industry in subcontracting of these essential parts.

HYGRADE SYLVANIA CORPORATION

Salem, Mass.—Booths Nos. 240 and 241

Demands created by the war effort have taxed the capacity of manufacturers of fluorescent lamps and lighting equipment. Because it is a known fact that light speeds work, those producing for victory have turned to fluorescent lighting as an important production tool. Hygrade Sylvania Corporation, a leader in the industry, will exhibit in its booth the types of industrial lighting units that are helping those engaged in war work to produce more work in less time and with less employee-fatigue.

JONES & LAUGHLIN STEEL CORP.

Pittsburgh, Pa.—Booths Nos. 1, 2 and 3

Scientific control of production processes resulting in uniform quality and characteristics of steel, is the theme of this exhibit. Bessemer flame-controlled steel, and Permalined steel

pipe for the transmission of highly corrosive fluids, yet capable of handling and assembling like ordinary pipe, are two of the products featured.

A. LESCHEN & SONS ROPE COMPANY

St. Louis, Mo.—Booth No. 236

The practical and pertinent part of this company's display will consist of a complete line of samples of such wire ropes as are used today for industrial, manufacturing, mining and oil field purposes. These samples will include their well-known "HERCULES" (Red-Strand) Wire Rope in Round Strand and Flattened Strand constructions—in both Standard and Preformed types. This exhibit will afford buyers of wire rope an opportunity to obtain first hand information on the particular kind of wire rope most suitable for their individual needs . . . that will do the most work for each pound of steel employed.

THE LUDLOW-SAYLOR WIRE COMPANY

St. Louis, Missouri—Booths Nos. 122 and 123

Wire cloths and woven wire screens, of Stainless Steel, Monel, Nickel, Aluminum, Galvanized Steel, Tinned Steel, Super-Loy, Brass, Bronze, Copper—from heavy screens woven of inch-thick bars to gauzes as fine as silk, woven of wires as fine as hair.

Included will be a complete variety of standard weaves—Double-Crimp, Arch-Crimp and Flat-Top Square Weaves, Plain and Herringbone Twills, Dutch Weaves, Rek-Tank, Sta-Tru and Straight-Warp Long-Slot Screens, and numerous special weaves for all industrial uses.

LUNKENHEIMER COMPANY

Cincinnati, Ohio—Booth No. 360

Bronze, iron and steel valves for all prevailing temperatures and pressures in industrial use; boiler mountings, lubricators, oil and grease cups, cocks, and specialties. Cut-away models show details of construction and operation.

MYSTIC WASTE COMPANY

Medford, Mass.—Booth No. 125

Sterilized sanitary wiping cloths, packaged for convenience in shipping, storage, issue, and use. Industrial cotton textiles.

NATIONAL METAL EDGE BOX COMPANY

Philadelphia, Pa.—Booth No. 10

More than ever the most efficient packaging procedure providing the most rugged containers is of supreme interest to American Industry. The Metal Edge exhibit will show how and why the "modern packaging method" and "the strongest



"If only the P.A. would be as interested . . . !"

paper boxes" serve the defense industries so admirably—not only for packaging and mailing but for Material Handling as well. On exhibit will be sturdy Metal Edge boxes doing work formerly entrusted only to wooden boxes, and doing it better.

NATIONAL VULCANIZED FIBRE CO.

Wilmington, Delaware—Booth No. 5

NATIONAL Vulcanized Fibre and PHENOLITE laminated bakelite, furnished to the electrical and mechanical trades in the form of sheets, rods, tubes and special shapes, including insulation for the electrical, radio, and kindred industries; for the mechanical trades—gaskets, gears, bushings; for the textile industry—fiber cans, boxes and cars, and fiber headed spools will be displayed in this year's Inform-a-Show. Also VUL-COT waste baskets.

In addition to the above there will be exhibited both Fiber and Phenolite for many other special applications, illustrating the versatility of both products.

OXFORD FILING SUPPLY COMPANY

Brooklyn, N. Y.—Booth No. 9

The exhibit will feature the new Oxford Pendaflex filing method, incorporating the principle of hanging all folders and guides for faster, more efficient operation. Pendaflex installations and Pendaflex Desk Data Files will be shown at work.

In addition the complete Oxford line of file folders, indexes, filing cards and systems will be sampled. Oxford representatives in attendance will be pleased to render any service in connection with filing problems.

THE WM. POWELL COMPANY

Cincinnati, O.—Booth No. 127

Powell Valves for Increased Plant Efficiency.

Every Purchasing Agent knows the nation's need for war production. With this in mind, and, knowing how important valves are in the tremendous job ahead, the Powell exhibit will try to aid the Purchasing Agent by showing him how the proper Powell Valve will increase PLANT EFFICIENCY.

PURCHASING

New York, N. Y.—Booth No. 362

PURCHASING—A Conover-Mast Publication—an independent monthly publication of national circulation, will be in the Inform-a-Show. The magazine is devoted exclusively to the interests of the purchasing executive in industry and Government. Established during World War I, it brings to the comparable problems of the present emergency a wealth of experience and practical information on procurement policies and procedure, on methods and materials, on national and economic conditions affecting buying practice. Long recognized as a leading factor in the development of the purchasing function, it provides the purchasing man with a sound interpretation of his part in management and in the national War Production program.

A. R. PURDY CO., INC.

New York, N. Y.—Booth No. 4

The A. R. Purdy Company booth will present a display of Purdy steels now being used in the National War Effort. Emphasis will be placed on the many unusual new and varied applications of special steels the company has in stock for immediate shipment. Of special interest will be the many parts to be exhibited giving information regarding the various uses of current types of Spring Steel.

JOHN A. ROEBLING'S SONS COMPANY

Trenton, N. J.—Booth No. 361

The John A. Roebling's Sons Company will exhibit groups of samples indicating the wide variety of wire products they manufacture. The general classifications of their products come under the headings of: Wire Rope and Fittings, Electrical Wires and Cables, Round and Flat Wire Specialties, Woven Wire Fabrics.

THE SANITARY INSTITUTE OF AMERICA

Chicago, Ill.—Booth No. 11

The Institute's exhibit will show how "the endless war on industrial disease has been taken to the ordinary wiping cloth. Health experts have found that danger of infection can be lessened through use of sterilized wipers" The "sanitized" wiping cloth is one of the articles to be featured.

Purchasing agents are familiar with the part played by the Sanitary Institute in standardizing the grading and packing of industrial wipers. Any purchasing agent having an industrial wiping cloth problem will be welcome to bring it to the Institute's booth for advice. The booth representative will not "plug" the products of any individual firm.

CHAS. A. SCHIEREN COMPANY

New York, N. Y.—Booth No. 124

Those who are looking for some of the unusual leathers made to government specifications will find such special leathers in Chas. A. Schieren Company's booth.

Leathers suitable for Gunport Bucklers, Anti-Aircraft Gun or Recoil Mechanism Seals made to Rock Island or Watertown Arsenal requirements, as well as the usual specification leathers for hydraulic purposes will be found a product of the Chas. A. Schieren Company Tannery.

The exhibit will show other unusual leathers produced by Schieren, including Apron Leathers for woolen mills tanned by an English process, finished products such as the extra flexible, long life Rub Roll Aprons, as well as the great variety of Mill Strapping commonly found in both cotton and woolen mills.

A working model of the latest in short center type drives for ½ to 500 HP units will be on exhibition.

SIGNODE STEEL STRAPPING COMPANY

Chicago, Ill.—Booths Nos. 131, 132 and 133

Purchasing Agents, Plant Operating Men and Engineers should find interest in the display at Signode's booth in which will be portrayed various Signode Steel Strapping applications developed by Signode engineers.

There will be several Signode representatives in attendance at the booth, all of whom have had considerable experience in solving the shipping problems that have developed as a result of the war industry program.

A cordial invitation to visit the Signode booth is extended to all manufacturers who want assistance in their packaging and bracing problems. Photographs and other data of engineered loads will be on display, and the experience of Signode engineers will be made available to you.

SOCONY-VACUUM OIL COMPANY, INC.

New York, N. Y.—Booths Nos. 6 and 7

In red, cream, and stainless steel, SOCONY-VACUUM'S attractive Exhibit will emphasize the importance of CORRECT LUBRICATION.

Flanking the center panel, color photographs will illustrate various industrial uses of GARGOYLE LUBRICANTS. At the side, mounted on drums, will be transparent plastic models of a Bearing, a Cylinder, and Gears—touched with red to indicate an Oil Film where CORRECT LUBRICATION is vitally necessary. The Bearing model can be demounted to demonstrate proper grooving and chamfering.

Their message will be presented in a setting that reflects the importance and wide industrial acceptance of SOCONY-VACUUM and GARGOYLE LUBRICANTS.

STAR CORRUGATED BOX CO., INC.

Maspeth, L. I., N. Y.—Booth No. 130

Included in this company's exhibit will be several types of packaging which they are now supplying to various customers.

The exhibit will be manned by a competent staff of packaging engineers, who will be glad to discuss special packaging problems with you.

D. A. STUART OIL CO.

Chicago, Ill.—Booth No. 367

Will exhibit specimen parts, including many war products, illustrating the fine workmanship and fast production aided by the use of such well known metalworking lubricants as Stuart's "THRED-KUT," Stuart's "SOLVOL" Liquid Cutting Compound, Stuart's "CODOL" Liquid Grinding Compound, Stuart's "SUPER-KOOL" Transparent Sulphurized Cutting Oil and Deep Drawing Lubricants, Stuart's "EXCELLENE" Thread Grinding Oil and Stuart's "STUARCO" EP Machinery Oils and Greases.

Current literature will be available for prompt mailing to your home office upon request.

THOMAS PUBLISHING COMPANY

New York, N. Y.—Booth No. 357

On display will be *Thomas Register of American Manufacturers,* a complete reference library in one volume for Purchasing Agents seeking reliable sources of supply. Also *Industrial Equipment News,* a monthly publication devoted to new products in industry.

UNDERWOOD ELLIOTT FISHER CO.

New York, N. Y.—Booth No. 128

A complete line of office machinery—Underwood typewriters, Underwood Sundstrand quiet model adding-figuring machine, Electric Keyboard Elliott Fisher accounting machine, Underwood Standard and Sundstrand 10-Key accounting machines, built for speed and accuracy and adapted to modern accounting requirements and procedure.

UNION BAG & PAPER CORPORATION

New York, N. Y.—Booth No. 359

An exhibit that will show the current trend of packaging and package design by displaying a wide variety of paper packages. Included in the exhibit will be many types of bags that are now being used directly and indirectly in war production work. Other groups of bags will show how paper is doing an efficient, money-saving job for many products formerly packaged in other ways. These displays will also indicate the wide range of facilities this company has available for designing and manufacturing paper packages.

U. S. GUTTA PERCHA PAINT CO.

Providence, R. I.—Booth No. 251

"How does it work?" That's the question everybody will ask about the giant "paintfall," U. S. Gutta Percha Paint Company's colorful exhibit of the famous BARRELED SUNLIGHT paint products.

Feature attraction of this striking display will be a mammoth up-ended paint bucket, from whose mouth flows a slow, steady stream of constantly changing color. Flanking this mystery "paintfall" two huge heads silently conduct a "quiz program," asking and answering the questions most frequently asked about BARRELED SUNLIGHT.

Helpful literature, including a unique "Specifications Catalog" which simplifies the writing of clear and authoritative plant painting specifications, will be yours for the asking when you visit this booth.

WALWORTH COMPANY, INC.

New York, N. Y.—Booths Nos. 364 and 365

The promotion of the Government's program of Salvage, Simplification, Specification, and Substitution will be combined with the commemoration of the 100th Anniversary of the founding of the Walworth Company at the exhibit in Booths 364 and 365.

At Inform-a-Shows in the past Walworth exhibited items from its complete line of valves, fittings, pipe and pipe wrenches, but inasmuch as 100% of our production is now going, directly or indirectly, into war requirements, the display of product will be limited.

F. S. WEBSTER COMPANY

Cambridge, Mass.—Booth No. 366

From coast to coast the slogan today is speed. That is one reason why Websters' Micrometric carbon papers are blazing a trail in modern typing.

The Webster exhibit will present its complete line of carbon papers, including Micrometric, a simple numbered scale, part of the carbon sheet itself, which is used by Secretaries for centering typing and estimating space for columns of figures. It tells typists exactly how many lines of typing there are at all times. It prevents smudged fingers, and at the same time permits removal of all carbon sheets in one quick operation. Easy reshuffling means longer wear.

CONVENTION COMMITTEES

Credentials

Frederick G. Space, The Seymour Manufacturing Co., Seymour, Conn. (Chairman).

Geo. W. Aljian, California & Hawaiian Sugar Refining Corp., San Francisco, Calif.

Ralph D. Berry, Davol Rubber Company, Providence, R. I.

Ralph N. Betts, American Education Press, Inc., Columbus, Ohio.

Walter H. Hallsteen, Ilg Electric Ventilating Company, Chicago, Ill.

Fred C. Irwin, Canada Wire & Cable Co., Inc., Toronto, Ont., Canada.

W. R. Swartz, Texas Gulf Sulphur Company, Newgulf, Wharton County, Texas.

Attendance Cup

Emile L. Morvant, Realty Operators, Inc., New Orleans, La. (Chairman).

George C. Eichhorn, Vick Chemical Company, Greensboro, N. C.

K. H. Searle, Utah Oil Refining Co., Salt Lake City, Utah.

Resolutions

S. E. Webster, Dominion Textile Company, Ltd., Montreal, Canada. (Chairman).

Wayne R. Allen, County of Los Angeles, Los Angeles, Calif.

George P. Brockway, American Optical Company, Southbridge, Mass.

John Higginson, Intercoastal Paint Corporation, E. St. Louis, Ill.

H. R. Michel, Westinghouse Electric & Mfg. Company, E. Pittsburgh, Pa.

Exhibitors' Advisory

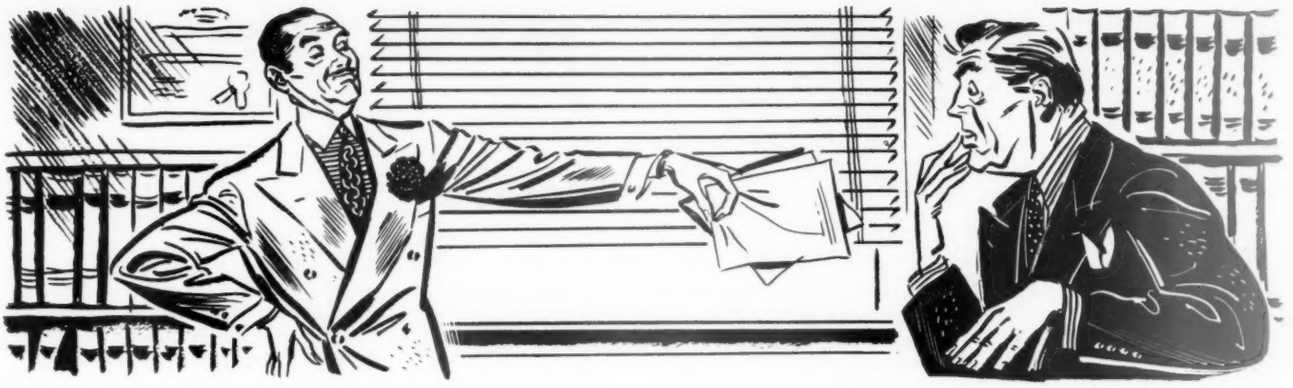
H. A. Burdorf, The Lunkenheimer Company, Cincinnati, Ohio.

R. M. Gibbs, Jones & Laughlin Steel Corporation, Pittsburgh, Pa.

G. R. Thomson, Walworth Company, Incorporated, New York, N. Y.

H. von P. Thomas, Bussmann Mfg. Co., St. Louis, Mo.

Geo. F. Plate, Equitable Office Building Corp., New York, N. Y.



BACK-FIRING

By CHARLES FORD

The best time to settle a complaint is before it happens. But if the stuff is wrong, it calls for business diplomacy on both sides.

SMITH & WILLIAMS are big printers and lithographers. They do good work, lots of it, treat their customers well and their help better, pay their bills cash on the barrel-head; and altogether are considered a white and regular outfit. Since Smith cashed in his final chips and departed to a sphere where it is still undetermined how printers and paper men fare, Williams is the head of the concern. He is a pretty good piece of work, but has a temper like a magnesium flare, under provocation. He is a square-set, Teddy Roosevelt type of man—thick glasses, big teeth and a bristly mustache. Ordinarily he is a genial enough guy, has lots of friends, is a crackerjack salesman, makes good money, plays golf in the low eighties, and has a weakness for drawing to inside straights.

Last year he took a big contract for road maps. The paper alone ran to about two hundred tons, and he planned to print the job on a string of big two-color offset presses. The paper came in and they started printing, but the damned stuff balked. Williams, because his customer had requested him to, had bought it from one of the big paper companies, rather more famous for quantity than quality.

The presses couldn't seem to run at more than half production. The pressmen kicked to the foreman; the foreman asked the superintendent how the hell he could be expected to print a job on any such bunch of iniquity as that; the superintendent severed diplomatic relations with the Purchasing Agent; and the Purchasing Agent told Williams he'd be damned if he'd accept responsibility for something he was told to buy against his judgment. Everybody's bearings were red hot. Williams called in the mill agent; all he could do was to put it up to the sales department who put it up to the manufacturing department, whose paper was always right whether it was right or not, and who had the old-fashioned railroad idea of settling complaints—let the customer go to hell in his own way.

And nothing was done. The pressroom struggled along, and Williams was near to apoplexy. The mill finally sent a man out, but all he could do was write a gloomy report. At last Williams issued his ultimatum; get the goddam situation ironed out—or else—

Then the mill folks did what they should have done in the first place. They sent out Flannery. Flannery's instructions were to report. They always sent Flannery out with instructions to report; but his compliance with such instructions usually came in after the settlement. His first early morning call on Williams started the fireworks. Williams was in great form, mustache bristling, eyes glaring through his glasses, and teeth showing back to his gullet. His vocabulary rose to the occasion; and the blast Flannery got was nobody's business.

Enter Mr. Flannery

Flannery calmly smoked and listened. When wind and invectives failed, and Williams was gasping like a landed fish, Flannery stretched himself, dropped his cigar butt into the receptacle made and provided, and remarked: "Well, suppose we go down to the pressroom and see what the trouble is."

To make a long story shorter, Flannery stayed there two days, acted nice to pressmen, foreman and superintendent; and was able to point out diplomatically a few things that helped speed up. You know some of these birds get so close to the trees they can't see the woods; and once a lot of paper starts out as a bad actor, nothing, in the eyes of a printer, will ever make it good again.

At the end of the second day, Flannery thought it was time for him to escape. When he appeared in the door of Williams' office, Williams pressed several buttons and they ganged up on him. When they had got it all out of their systems, Williams grabbed the edge of his desk with both fists, and glared and blared: "Well, what are you going to do about it?"

Flannery smoked reflectively for a minute, then remarked: "Mr. Williams, I'm not going to try to tell you there's nothing wrong with that lot of paper. There are some outs about it; but perhaps you will agree that, considering the developments of the last two days, there was also something wrong with your treatment of it. But I'm not going to stress that.

What I am going to do is to write my people that we are placing ourselves entirely in your hands in the matter. The paper is here; you have to get out your contract, and the way you are going now you won't be far from on time. When you're all through, send us a bill for what you think is fair and we'll pay it."

That meeting collapsed like a rationed tire. Williams gasped; the rest of the gang faded out. When Williams pulled himself together, all he could say was: "Well, I'll be damned." It took him a few minutes to get himself organized, then he continued:

"Mr. Flannery, I appreciate your attitude, and assure you no advantage will be taken of it. When we get the run off, I'll have our accountants figure out the loss and let you know what it is. And I'll say I think you're a damn good egg. Goodby."

Williams reported a loss of about 1½% of the value of the paper; the paper company's manufacturing department wanted to know if they couldn't settle for about 1% and Flannery politely but firmly told them where they could go. Flannery sized this up a case that couldn't be settled on its merits. He sized up his man and the rest was window dressing. The paper should have been made over, but Flannery knew that this would mean a prolonged scrap and a big loss. So he played poker with Williams.

A Two-Edged Sword

What I'm leading up to in reciting this yarn is, that the business of making complaints and claims is a two-edged affair. It's like the big double-edged swords our crusading ancestors used against the heathen,—you could split your enemy in two, but you had to be damned careful in doing it not to stub your toe and split yourself at the same time.

This question of claims is just as important to Purchasing Agent as to salesman. If a complaint has to be made, he shouldn't take anybody's word for the facts. He should personally investigate and register his claim, if he makes one, with a complete knowledge of the facts and complete conviction that the claim is a fair one. Then he can convince his supplier and get a fair settlement. Even then, demanding the pound of flesh is not always to the interest of his house. The continuity of a good account is just as valuable to Purchasing Agent as to salesman; and a reputation for fairness and even liberality pays dividends. A fair, constructive complaint makes for smooth sailing to a settlement; if you are unreasonable, you will sooner or later get a very swift kick in the slats. If your supplier doesn't meet you on the same basis, you don't have to keep on buying from him.

There are three pretty good rules for a salesman in settling claims; and I give them in the order of their importance:

1. Keep your customer good-natured.
2. Get the matter settled up promptly.
3. Get out of it as cheap as you can.

For the buyer:

1. Don't get your supplier peevish.
2. Get a prompt settlement.
3. Get all you decently can without a blackjack.

The Purchasing Agent, if he is regular, needs no reminder that as far as suppliers are concerned, he is the house. If his decisions have to be appealed, he is no Purchasing Agent. A successful campaign for the right kind of materials hinges entirely on how good a salesman the Purchasing Agent is. That may be one reason why so many important purchasing jobs are filled from the ranks of salesmen. The same principles apply to both. If a guy is a good salesman, the chances are he will make a good buyer. If he is a good buyer, he likely can sell the house's merchandise as well as the house itself.

In the palmy days of railroad transportation, when a shipper made a claim on the road, it stayed in a basket on the claim agent's desk. Others came in and were dumped on top if it. When winter came, and the golf business became quiet, the claim agent would empty out the basket, and send the papers to the traffic department. The traffic department would let them ripen some more, then attach an inquiry on each to the local agent at point of origin. The local agent, when he got time, would interview the shipper and maybe get a good cigar. Then he would send an evasive reply to the traffic department, who would keep it under consideration and paper weights for another month or two. At the end of that time the claim agent would get the papers back and he'd be just as wise as before. If the consignee kicked in the meantime it would be looked up and reported on. Maybe. If the claimant was damnably persistent and didn't die too soon, eventually he might get his reply, and perhaps a payment if the claim was a dead-open-and-shut affair. But usually he died too soon. The railroads have seen the light and nowadays they settle pretty promptly—unless business is very good.

Claims are a good deal like the old-fashioned two-cycle engines they used on fishing boats; if you didn't watch the damn' things and treat 'em judiciously, they might back-fire and break an arm for you.



THE MARKET PLACE



Quotations on basic materials for carloads or mill shipments, with comparative prices quoted one month ago and one year ago

(*denotes ceiling price)

	May 1 1941	Mar. 21 1942	April 20 1942
ACIDS			
Acetic, 28%, cwt.	2.23	3.38	3.38*
Muriatic, 18 deg., cwt.	1.50	1.50	1.50
Nitric, 36 deg., cwt.	5.00	5.00	5.00
Oxalic, Works, cwt.	10.75	11.25	11.25*
Phenol, Works, cwt.	14.25	14.25	14.25
Sulphuric, 66 deg., ton	16.50	16.50	16.50



BUILDING MATERIALS			
Brick, N. Y. dock, per M.	12.00	12.50	13.00 ↑
Cement, f.o.b. plant, bbl.	2.15	2.15	2.15
Glass, single B, per box	2.80	3.14	3.14
Lime, pulv., N.Y., per ton	....	17.00	17.00
Nails, wire, per keg	2.55	2.55	2.55*
Oak flooring, per M. ft.	80.00	85.00	85.00
Southern pine, K.C., per M ft.	31.47	45.00	52.50* ↑
CHEMICALS			
Alcohol, denatured, gal.	.38	.65	.65*
Alumina Sulf., Comm., Works, cwt.	1.15	1.15	1.15
Ammonia, aqua, 26 deg., drums	.02¼	.02¼	.02¼
Arsenic, White, cwt.	3.50	4.00	4.00
Red, cwt.	nom.	nom.	nom.
Barium Chloride, ton	77.00	77.00	77.00
Carbonate, ton	56.50	56.50	56.50
Benzol, pure, gal.	.14	.15	.15
Borax, powd., ton	48.00	50.00	50.00
Chlorine, cwt.	1.75	2.00	2.00
Formaldehyde, lb.	.05¼	.05¼	.05¼*
Glycerine, drums, lb.	.12½	.18¼	.18¼*
Lead acetate, white, broken, cwt.	11.00	12.50	13.25 ↑
Nickel sulphate Double	.13	.13	.13
Single	.13	.13	.13
Potash Caustic, solid	.06¼	.06¼	.06¼
Permanganate	.20	.20½	.20½
Sal Ammoniac Gran. white, cwt.	4.50	4.50	4.50
Gran. gray, cwt.	5.75	5.75	5.75
Saltpeter crystals	.086	.092	.092
Soda Ash, 58%, light, bulk, cwt.	.90	.90	.90
Caustic, 76%, solid	2.30	2.30	2.30
Sal, Works, cwt.	1.10	1.10	1.10
Sodium Bicarbonate, cwt.	1.70	1.55	1.55
Tri-Sod. Phosphate, cwt.	2.35	2.90	2.90
Silicate, 60 deg., cwt.	1.65	1.65	1.65
Sulphur, Comm., cwt.	1.60	1.60	1.60



COAL & COKE			
Anthacite, stove, mines	6.25	6.75	6.75*
Bituminous, Cleaf, mine run	2.70	2.70	2.70
Beehive Coke, Connellsville	5.25	6.00	6.00*
By-product Coke, Newark	11.85	12.45	12.45*
FERTILIZERS			
Muriate potash, 62-63%, per unit K 20	.53½	.53¼	.53½ ↑
Sulphate potash, 90-95%, bags.	36.25	nom.	nom.
Nitrate soda, bulk	27.00	27.00	27.00
Sulphate ammonia, dom., bulk.	29.00	30.00	30.00
Steamed bonemeal, 3 and 50 per ton	35.00	37.50	37.50
GRAINS			
Barley, malting, bu.	.76¼	.80¾	.86⅞ ↑
Corn, No. 3, yellow, bu.	.68	.80½	.80¼ ↓
Oats, No. 2, white, bu.	.39¼	.57¼	.56½ ↓
Rye, No. 2, Western, bu.	.63¼	.93⅝	.90¼ ↓
Wheat, No. 2, hard winter, bu	.85¼	1.17¾	1.11 ↓
Flour, spring patents, 196 lbs.	5.15	6.30	6.05 ↓
HIDES			
Light native cows, lb.	.14¼	.15½	.15½*
Heavy native steers, lb.	.13½	.15½	.15½*
Calfskins, 5-7 lbs. per skin	1.80	1.65	1.65*

IRON & STEEL

	May 1 1941	Mar. 21 1942	April 20 1942
Pig iron, foundry No. 2	24.00	24.00	24.00*
Pig iron, basic, valley	23.50	23.50	23.50*
Cast iron pipe, New York	52.20	52.20	52.20*
Forging billets, Pittsburgh base	40.00	40.00	40.00*
Sheet bars, Pittsburgh base	34.00	34.00	34.00*
Wire rods, Pittsburgh base	40.00	40.00	40.00*
Cold rolled sheets, cwt., Pittsburgh base	3.05	3.05	3.05*
Hot rolled annealed sheets, cwt., Pittsburgh base	2.10	2.10	2.10*
Cold rolled strips, cwt., Pittsburgh base	2.80	2.80	2.80*
Hot rolled strips, cwt., Pittsburgh base	2.10	2.10	2.10*
Tin plate, cwt., Pittsburgh base	5.00	5.00	5.50* ↑
Bars, cwt., Pittsburgh base	2.15	2.15	2.15*
Shapes, cwt., Pittsburgh base	2.10	2.10	2.10*
Bright wire, cwt., Pittsburgh base	2.60	2.60	2.60*
Ground shafting, cwt., Pittsburgh base	2.65	2.65	2.65*
Rails, ton, Pittsburgh base	40.00	40.00	40.00*



METALS, NON-FERROUS

Aluminum, virgin ingots	.17	.15	.15
Antimony, American, spot	.14	.14	.14
Copper Electrolytic	.12	.12	.12*
Chromium, 97%, spot	.84	.84	.84
Lead, E. St. Louis	.057	.0635	.0635*
Nickel, ingot	.35	.35	.35
Quicksilver, flask	182.00	198.96	198.96*
Silver, bars, N. Y., per oz.	.34¾	.35⅛	.35⅛
Tin, Straits, spot	.5225	.52	.52*
Zinc, E. St. Louis	.0725	.0825	.0825*

METAL PRODUCTS

Copper, wire, bare, cwt.	15.375	15.375	15.375
Yellow brass sheets, high	19.48	19.48	19.48



NAVAL STORES

Turpentine, gal.	.48¼	.76¼	.69 ↓
Rosin, Grade B, cwt.	2.17	3.50	2.90 ↓

PAINT MATERIALS

White lead, dry, basic, carbonate	.07½	.07½	.07½
Carbon black	.03325	.03625	.03625
Shellac, orange	.24	.32	.32*
Linseed oil	.107	.139	.141 ↑



PAPER

News, roll, ton	50.00	50.00	50.00
Book, M. F., cwt.	6.40	7.50	7.50
Wrapping, Northern, cwt.	5.25	5.50	5.50
Wrapping, southern, cwt.	4.50	4.75	4.75
Wrapping, manila jute, cwt.	8.75	8.75	10.75 ↑
Chip board, No. 1, ton	45.00	45.00	45.00*
Wood pulp, mech, ton	34.00	40.00	46.00* ↑
Wood pulp, sulph., No. 1, cwt.	3.17½	3.17½	3.17½*



PETROLEUM

Crude, Mid-Continent	1.07	1.17	1.17
Crude, Penna.	1.99	2.30	2.55* ↑
Gasoline	.07	.083	.088* ↑
Bunker Oil C	1.35	1.35	1.55* ↑
Kerosene, 41-43 grav.	.052	.053	.057 ↑
Penn. bright stock, light, 25 P. T.	.23	.36	.36
Penn. cylinder oil, 600 flash	.18½	.26½	.26½



RUBBER

Smoked sheets († Rubber Reserve Co. selling price)	.23⅜	.22½	.22½†



TEXTILES

Cotton middlings, Galveston	.1083	.191	.20 ↑
Cotton yarns, 22s	.33½	.42	.43 ↑
Print cloths, 38½", 64 x 60	.07¼	.08691	.08878* ↑
Sheetings, 37", 48 x 48	.08¼	.10	.1025* ↑
Wool, fine combing, ½-blood	1.02	1.15	1.15*
Worsted yarns, French 2.40s	1.85	nom.	nom.
Worsted yarns, English 2-40's	1.82½	nom.	nom.
Silk, Japan, double ex. cracks	2.79	3.08	3.08*
Rayon viscose, 150, 40s	.53	.55	.55
Burlap, 10½-oz., 40"	.122	.11	.11*
Hemp, Manila	.08	.10¼	.10¾



To speed compounding of materials, this Fairbanks Dial Scale was built into a charging car which travels in a pit. At the touch of a button the Printomatic gives an accurate printed record of each batch.

You Can Do It FASTER with MODERN SCALES

● Rare is the weighing job which can't be done faster and more precisely with today's vastly improved scales. These scales *print* weight records more quickly than a man can read and write them. They *eliminate human errors.* They weigh while materials are *on the move.*

But—important as those advantages are—don't dismiss modern scales as nothing more than better weighing instruments. For scales have assumed amazing *extra* functions which often speed production surprisingly. They *count* small parts and products. They furnish weight records for accounting and inventory control. They weigh and disburse preset amounts *automatically,* and can keep ingredient proportions *secret!*

WE WANT TO HELP YOU

We are anxious to do everything we can to help speed American production. Possibly our scale engineers could suggest new and more efficient applications of scales in *your* plant, or modifications of your present scales to attune them to today's tempo. Write Fairbanks, Morse & Co., Dept. E68, 600 S. Michigan Ave., Chicago. Branches and service stations throughout the United States and Canada.

FAIRBANKS·MORSE SCALES

DIESEL ENGINES ELECTRICAL MACHINERY MAGNETOS RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS MOTORS FAIRBANKS SCALES WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS

New PRODUCTS · IDEAS

COIL TESTER



■ A new line of coil testing machines is announced by Photobell Corp. of New York City for quickly checking all of the electrical properties of a coil in one handling. Tests are provided for checking the limits of insulation resistance, coil resistance, effective a-c resistance, inductance, and shorted turns. Additional tests are for checking effective turns, direction of windings, and other properties. There are two types of machine, the automatic and semi-automatic. Each machine has a holder adapted to the special shapes of coils to be tested.

The photograph shows a machine of the semi-automatic type, capable of making eleven tests in quick succession on each coil, and checking up to 250 coils per hour. In using this machine, the operator attaches the coil to holder at center of panel, pushes terminal wires into spring clips, and turns the large knob one step at a time. The design is such that at each step the pointer of the illuminated galvanometer must cross the center of its dial by moving from left to right, or from right to left. The operator watches for this movement, and if it occurs knows that the coil has passed that test. If the pointer does not cross the center of the dial for some one test, then the nature of the defect in that coil is read directly from the lettering on the knob.

The machine illustrated here is designed to check a special coil with three windings, and the holder at center of panel is designed to fit this particular coil shape. The machine checks the resistance of each winding by the "high-low bridge" method; checks the effective a-c resistance at 900 cycles; checks the direction of each winding; and finally checks the high and low limits of inductance. All of these tests are performed in a few seconds without strain.

An automatic machine for the same purpose is in continuous use, and more information on it will be available soon. This machine uses relays to supervise itself and to pass from one test to the next without attention from the operator. Up to 300 complicated coils per hour may be tested automatically for 21 possible defects. The operator merely inserts and removes coils, and notes presence of any defect from a bank of lamps.

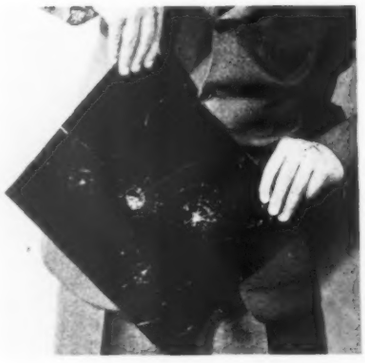
FILE HOOKS



■ Ver-Tabs can help you by speeding up filing 20%—by giving you an immediate saving in working hours. And the best part of it is that this saving can be achieved with your own filing equipment and folders. Thousands of busy firms are installing Ver-Tabs because, they are low in cost, they modernize any filing cabinet to absolutely top efficiency. Time is saved, effort reduced and misfiling is almost completely eliminated. Ver-Tabs allow four clerks to do the work of five. And filing systems are more easily handled than ever before.

Made by Ver/Tabs, New York, N. Y.

BLACK-OUT COATING



■ As protection against the deadly hazard of flying glass during air raids, a new coating for windows is now being offered by Douglas Distributors, Inc. of New York City. Investigation in England clearly showed that fully 90% of the civilian casualties caused by Nazi bombs were attributable to flying debris, particularly glass. The new coating developed by American chemists has the remarkable property of holding glass splinters together, even though the window may be shattered into thousands of fragments. Unlike many black-out coatings, this new patented formulation, which is applied with a brush to the inside of windows, washes off easily with water and a cloth. It makes a window absolutely opaque for a period of a year or more under normal conditions. According to Douglas Distributors, Inc., great interest is being shown in this Protex Coating by defense industries, office buildings, schools and factories of all types.

An outside black-out coating, another product of American laboratories, is also being offered by Douglas Distributors, Inc. This coating is sprayed or brushed on the outside of windows, forming a dense, flat black finish which is impervious to all weather conditions. Approved by the National Bureau of Standards and the O.C.D., this outside coating dries in half an hour, avoids all

Crowding the turns can mean trouble in piping, too!



When they're riding hell-bent for leather . . .

LOOK OUT! Rounding the turn into the stretch is the place where horse races can be won or lost. A horse gets "pocketed." A rider is jostled. Because there's *added* danger at the turns, anything can happen! TURNS are crucial danger spots in piping systems, too! That's why welding with Tube-Turn fittings is sounder practice wherever pressure and strain are liable to cause leaks, breaks, or pipe connection failures of any kind. There is a Tube-Turn fitting to protect and strengthen *every* piping turn—all types, sizes and weights—returns, elbows, tees, reducers, laterals, nipples, caps, saddles, and flanges.

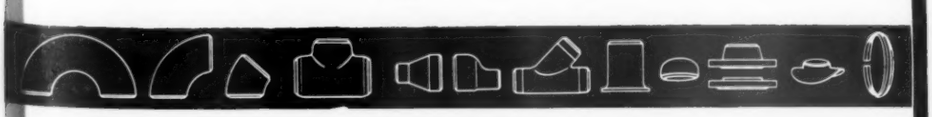
Write for helpful engineering data book and catalog.

TUBE-TURNS, Inc., Louisville, Ky. *Branch offices:* New York, Chicago, Philadelphia, Pittsburgh, Cleveland, Tulsa, Houston, Los Angeles. *Distributors in all principal cities.*

TUBE-TURN TRADE MARK

The FIRST WELDING FITTINGS 1ST AND STILL THE BEST

Welding Fittings



WHEN THE "PRESSURE'S ON" TUBE-TURN FITTINGS WILL GIVE FULL PROTECTION



In this compact, streamlined assembly, welded pipe lines and Tube-Turn fittings *(indicated by check marks)* will harness wild, live steam in one of America's large industrial plants. A failure at any point here would mean more than stopped production and lost man hours. It could mean terrific damage, perhaps loss of life. But Tube-Turn welding fittings give *added protection* where it's needed—at the turns!



THIS *Protected Steel* ROOFING AND SIDING *available now!*

For WAR CONSTRUCTION

. . . factories, chemical and powder plants, foundries, storage sheds, boiler-houses, pump-houses, hangars, etc.

APS ASPHALT PROTECTED STEEL

★ **SPEED**

Requires no field coat, eliminating costly delays.

Available in standard stock sizes NOW.

Special sizes can be quickly processed and shipped.

★ **ECONOMY**

Reasonably low prime cost.

No painting or maintenance expense.

Easily and economically erected.

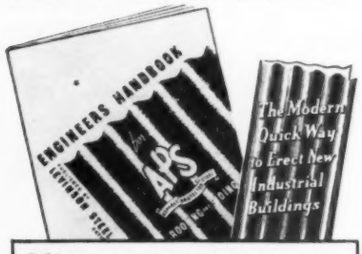
★ **DURABILITY**

Molten plastic compound uniformly applied by special roller-coating process. Further reinforcement with inert mineral substance assures maximum protection.

Scientifically controlled heat process assures perfect bond of metal and protective coat.

Every sheet coated flat, then formed—an indication of its rugged quality.

Durable in the extreme range of weather conditions—resistant to acid fumes and gases!



***Write* for Literature and Sample**

Get complete information on APS and ask for free sample. We'll gladly send you informative folder, as well as our Special Engineer's Handbook with constructional details and useful data for estimating. Name of nearest representative sent on request.

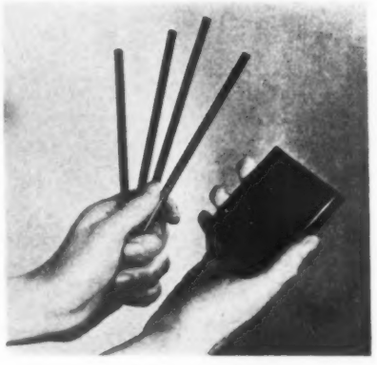
LEVINSON STEEL SALES CO.

National Distributors for A P S Roofing and Siding

33 PRIDE STREET · PITTSBURGH, PA.

danger of reflection, yet can be readily removed at any time with kerosene and a cloth. This improved coating will not cause windows to crack or split under the heat of the sun's rays, thus overcoming one of the major difficulties experienced by defense plants with similar products.

HARD SPONGE RUBBER



■ B. F. Goodrich announcement that its laboratories have completed successful tests and are now ready to go into production of Ameripol hard sponge rubber comes as a real innovation in synthetic rubber manufacturing.

Laboratory tests show that this rubber possesses the same properties and general characteristics of the regular Ameripol Compound in its resistance to the action of oils, greases and other solvents that are natural enemies of rubber. It is light in weight thus giving a high degree of buoyancy; can be sawed or drilled; has good acoustic properties; does not show any degree of injury after prolonged subjection to heat of 158° F. Low water and oil absorption makes it particularly adaptable as a float material. High resistance to acids and oils broadens its use as a float beyond that of any other materials.

It can be produced in slab or molded form. Compression tests prove that a mechanical pressure of 225 pounds per square inch will not break down or harm its cellular makeup. All possible uses for this new synthetic hard rubber have not yet been explored, but among known uses is its suitability on specialized insulating and float jobs where an oilproof, waterproof and acidproof material is required.

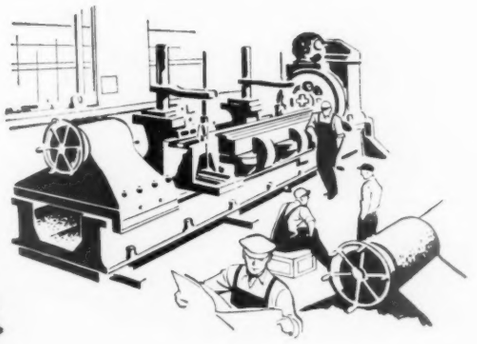
FAN-TYPE AIR HEATER

■ For use in offices and stores, a new fan-type all electric unit heater is announced by Westinghouse Electric and Manufacturing Company. Available in 5 and 7½-kw sizes, 230 volts, 50/60 cycles, the units have an output of 17,060 and 25,590 btu respectively. These sizes are an extension of the 2, 3, and 4-kw heaters announced a year ago.

The heater is cylindrical in shape with a bracket designed for vertical adjust-

When writing Levinson Steel Sales Co. please mention Purchasing

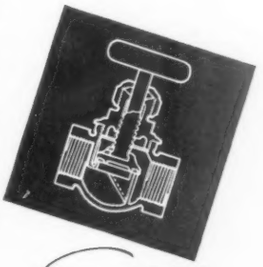




FOR WANT OF A VALVE

For want of a valve, steam was lost
For want of steam, the steel was lost
For want of steel, a gun was lost
For want of a gun, an army was lost!

THAT rhyme is just another way to say that it now has become imperative that valves—particularly the valves *you* use—be maintained at the peak of efficiency. . . . Ordinarily that might mean replacement of many valves. But today valve metals are on the critical list. It has become un-American to replace valves that can be restored through repair or replacement of parts. And it is true Americanism to revert to old time thrift when checking the conditions of each valve and *"use it, mend it, make it do."* . . . As a matter of fact, Pratt & Cady, by their invention of the Globe Valve with renewable seat and disc made this possible. You *can* renew your valves by first, resurfacing disc and seat—or wedge and seat—to a new seal. Then, when they are completely worn out, replace only these smaller parts. To be sure, the delivery of seats and discs is also subject to government regulations, making it good business to check the condition of your valves in plenty of time.



1885

Taken from one of the original Pratt & Cady Globe Valve patent drawings

READING-PRATT & CADY
READING, PENNSYLVANIA

A Division of AMERICAN CHAIN & CABLE COMPANY, INC. Bridgeport, Conn.

TURN THE *NIGHT SHIFTS INTO DAY*
THE WHEELER
FLUORESCENT
WAY



INSTALLATION
WHEELER NO. 4925 "DAY-FLO"
FLUORESCENT UNITS

WHEELER "DAY-FLO" FLUORESCENT UNITS
GIVE THIS PLANT 50 FOOTCANDLES OF
***"PRODUCTION BOOSTING"* DAYLIGHT ILLUMINATION**

One of the surest, quickest and most economical ways to keep production levels uniform is by providing more and better light.

Good lighting is a major production tool. It enables workers to see clearly and easily at all hours — day and night. It helps eliminate accidents, eye-strain, fatigue, rejects and other factors that result in production slow-downs.

The unretouched night photograph shown above, was taken in the Assembly and Final Inspection Department of a large manufacturer. Wheeler "Day-Flo" Fluorescent Units provide an average illumination of 50 footcandles on the working plane — abundant illumination for workers to see easily at all times.

There are types and styles of Wheeler Fluorescent Units to meet practically any industrial lighting requirement. Wheeler engineers are available to assist you in recommending and planning a good lighting system.

WRITE FOR COPY OF NEW BULLETIN "WHEELER FLUORESCENT LIGHTING EQUIPMENT"

Distributed Exclusively Through Electrical Wholesalers. Manufacturers of Lighting Equipment Since 1881.

Manufacturers of Lighting Equipment Since 1881
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REFLECTOR COMPANY
275 CONGRESS ST., BOSTON, MASS.
NEW YORK · CLEVELAND · *REPRESENTATIVES IN PRINCIPAL CITIES*

ment. Overall dimensions are approximately 20 inches high by 16 inches wide by 15 inches deep. Powered by a ⅛-horsepower motor with resilient mounting, a four-blade fan operates at 1725 rpm to put out 615 cfm of air at a velocity of 785 feet per minute.

A Corox heating element is used to give long life, dependable performance, and economical operation. To prevent overheating, a temperature limit switch is connected in the control circuit of the contactor. Maximum air temperature rises based on a 70-degree inlet temperature are 45 and 60 degrees in the 5 and 7½-kw ratings.

Mounting can be made on wall, ceiling, and floor. The heater can be adjusted vertically over a considerable range simply by loosening, adjusting, and tightening two nuts.

CHECKING GAGE



■ The Sheffield Corporation of Dayton, Ohio, has announced the development of a new gage for checking simultaneously external or internal diameters and depths. The gage, known as the Precisionaire-Electrichek, combines in one housing the features of Sheffield's Precisionaire and Multichek.

One section of the gage, operating on the same principle as the Precisionaire, measures the rate of flow of air passing between the gaging spindle and the internal diameter. The other section of the gage operates on the same principle as the Multichek with its independent Reed Mechanism Gaging Unit. Although both sections are independent of each other, they work simultaneously.

Above can be seen the two indicating tubes with their respective indicating floats. These are similar to indicating tubes and floats of other Precisionaires. Each tube has two markers. They are set at the high and low limits representing the tolerances of the diameters that are being checked. These limits are established, as in the case of all Precisionaires, by using high and low masters on the gaging spindle. The position of the floats in the tube indicating whether or not the tolerances have been violated. If the float comes to rest between the high and low markers, it establishes that the diameter is within tolerance.

The light center circle at the upper lefthand corner of the gage is the signal



Your shoes and *Ours*

You must have steel to do your part for Victory.

To take care of your needs, our plants are running day and night at capacity. Our men and women are AT WORK. We are busy producing our share of steel that America must have.

Is there enough steel for Victory? We say--Yes. We believe the nation's present difficulties with this critical material will be solved by cooperation between all users and producers, as partners for Victory.

When we at Youngstown look at your needs for steel, we try to put ourselves into your shoes; when you view the producer's problems, won't you try our shoes?

THE YOUNGSTOWN SHEET AND TUBE COMPANY
YOUNGSTOWN, OHIO

25-32E

Our "Know How"



Checking aircraft products with modern hardness testing equipment.



Testing thread accuracy of precision products with the thread comparator.



Magnetic inspection of product intended for highly stressed applications.



CAN MAKE YOUR JOB EASIER IN WAR MATERIAL PRODUCTION

● Is yours one of the plants confronted with strange, new problems of war materials production? Are you faced with intricate "specs" that are new to your methods and equipment? Are you "snowed under" with details that you are unprepared to handle quickly?

If your problems involve bolted assemblies—lean heavily on Lamson & Sessions' "*know how*" to help lighten your burden.

"Know how" anticipates that the most modern methods of manufacture are in use at Lamson & Sessions' *five plants.* In our factories you will find the most modern machinery for bolt manufacture in the world, the most modern equipment for heat treatment, plating, inspection, development and research. Our personnel is expertly trained not only in manufacturing but is unsurpassed in engineering as well. "Know how" here is a tangible help to you if your problem can be solved by bolt specialists. Let us be more specific.

Lamson & Sessions' plants are heading and heat treating aluminum alloys and have facilities for anodic treatment of these alloys.

Spectroscopic inspection is a routine part of Lamson & Sessions' quality control.

Magnetic inspection is another routine part of Lamson production—and we are fully equipped for that.

Hardness testing facilities here are the latest—heat treating equipment the newest and most modern.

Inspection in every department is maintained throughout our plants—and every provision made for maintaining exacting standards of accuracy.

All of these facilities are in constant use here, and have been for a long while. They are part and parcel of our production equipment to fit the times. Our personnel is trained to use these facilities properly. In short, we already have the "know how" which will solve some of your problems quickly and efficiently, *and at no expense to you.*

You, too, can draw upon the accumulated experience of Lamson & Sessions with the same assurance that others do for fulfilling rigid Government specifications—for Lamson personnel has long been accustomed to interpret and comply with Government requirements, and is doing so every day.

It is possible that Lamson & Sessions' "know how" can help you—

Save time—because we may be able to show you how to use a part we can make by hot or cold forging (now made on screw machines) and make it more quickly by our methods.

Save money—because we may be able to show you how to use a part produced by bolt-making machinery, to standard specifications, with a minimum waste of raw materials instead of a "special" milled from the bar.

Save critical alloys—because we may be able to show you how to use a carbon steel bolt properly heat treated that will serve as efficiently as an alloy steel bolt—and thereby conserve critical alloys for other purposes.

Save raw material—because we may be able to show you how to replace a large bolt (not heat treated) by a smaller *heat treated* carbon steel bolt. *Here is a specific example:*

	¾" DIA.	½" DIA.
Actual breaking load	24,000 lbs.	24,000 lbs.
Weight per 100 bolts	82 lbs.	35 lbs.
Ultimate tensile strength	71,700 psi.	150,000 psi.
Material	Hot rolled steel of 0.14 to 0.22 carbon content	S. A. E. 1035 steel
Heat-treatment	Stress relief	Quench and draw
Diameter of bolt	¾ in.	½ in.
No. of threads per in.	10	20
Mean diameter	0.6526 in.	0.4512 in.
Area at mean diameter	0.3344 sq. in.	0.1599 sq. in.
Length under head	6 in.	6 in.

Above data shows essentials of some of the timeliest advice given by Lamson engineers. It shows how and why a smaller bolt using 57% less steel will carry the same load in tension as the larger bolt!

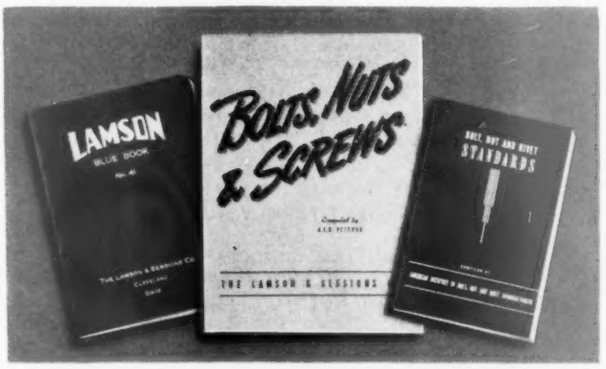
We have shown you how to get better deliveries, better products, faster assemblies or lower costs by the use of hot or cold forged products. When we can do all this *and also show you* how to save steel or avoid the use of critical alloys—that is Lamson "*know how*" at work *again.* Ask a Lamson engineer to call and talk it over with you. He is trained to *help you*—not just to sell you something.

These three books will help you in specifying and buying standard bolts and "specials"

The Lamson Blue Book—our complete catalog of *standard* products excepting our aircraft products.

"Bolts, Nuts and Screws"—70 pages of technical and practical information. First copy gratis if requested on your letterhead; additional copies *one dollar each.*

"Bolt, Nut and Rivet Standards"—175-page book published by the American Institute of Bolt, Nut & Rivet Manufacturers, 1550 Hanna Bldg., Cleveland, Ohio; Price *one dollar* per copy. (Order from the publishers, please.)



★ *BUY U. S. DEFENSE BONDS* ★

A recent excellent article "Cold Header or Screw Machine?" by Herbert Chase, Consulting Engineer, giving detailed engineering data on the subject of this advertisement, will be mailed free on request.

THE LAMSON & SESSIONS COMPANY • 1971 West 85th Street • Cleveland, Ohio

Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

LAMSON & SESSIONS

BOLTS · · NUTS · · COTTERS · · CAP SCREWS · · SPECIALS

Your Jobber Stocks the Lamson Line



Use CURTIS AIR HOISTS

to Speed Heavy Lifting Jobs — Reduce Worker Fatigue — Release Needed Workers

Shown above is an installation of a Curtis "One-Man" Air Hoist used at the loading-end of a cleaner in a malleable foundry. The mill was built by N. Ranshoff, Inc., Cincinnati.

This is but one example of how Curtis Air Hoists perform heavy lifting jobs quickly, easily, and accurately. They reduce worker fatigue, release men for other jobs—particularly important now in these days of skilled labor shortages. In plants throughout the country, Curtis Air Hoists have solved many a tough production and personnel problem.

In the face of urgent demands for increased production today, it will pay you to consider these advantages of Curtis All Steel Air Hoists:

- **Low first cost — low operating expense**
- **Smooth, fast, accurate control of loads**
- **Light weight, pendant, bracketed, or rope compounded types**
- **Immunity to abuse or overloading**
- **Fewer interruptions for servicing**
- **One man operation — by ordinary labor**

For complete information as to how you can step up production and lower costs in *your* plant, send for free booklet, "How Air Is Being Used in Your Industry"—mail the coupon today.

CURTIS

ST. LOUIS • NEW YORK • CHICAGO • SAN FRANCISCO • PORTLAND

CURTIS PNEUMATIC MACHINERY DIVISION
OF CURTIS MANUFACTURING COMPANY
1908 Kienlen Avenue, St. Louis, Mo.

Please send me free booklet C-60, also information on Curtis Air Hoists.

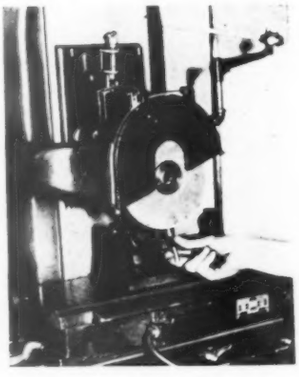
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Address.....

City.....State.....

light for the Multichek section of the gage. When its respective diameter is within the tolerance established by masters, the light shows amber; when the diameter is undersized, the light shows red; and when oversized, it shows green. To permit rapid reading, a master Multichek signal light has been placed between the two indicating tubes. When the external diameter is within tolerance, this light is off. Therefore, the inspector need only look at the center of the gage proper to immediately see the condition of all diameters being checked. The gaging spindles of both parts of this gage are located at the base, and so placed that the inspector contacts both in one pass. The Precisionaire spindle of the gage shown in the photograph has two orifices, one for each of the internal diameters being checked. Immediately to the left of this spindle is the Multichek gaging spindle. The Reed mechanism gaging unit of the Multichek section protrudes from the rear of the housing.

RADIUS DRESSER



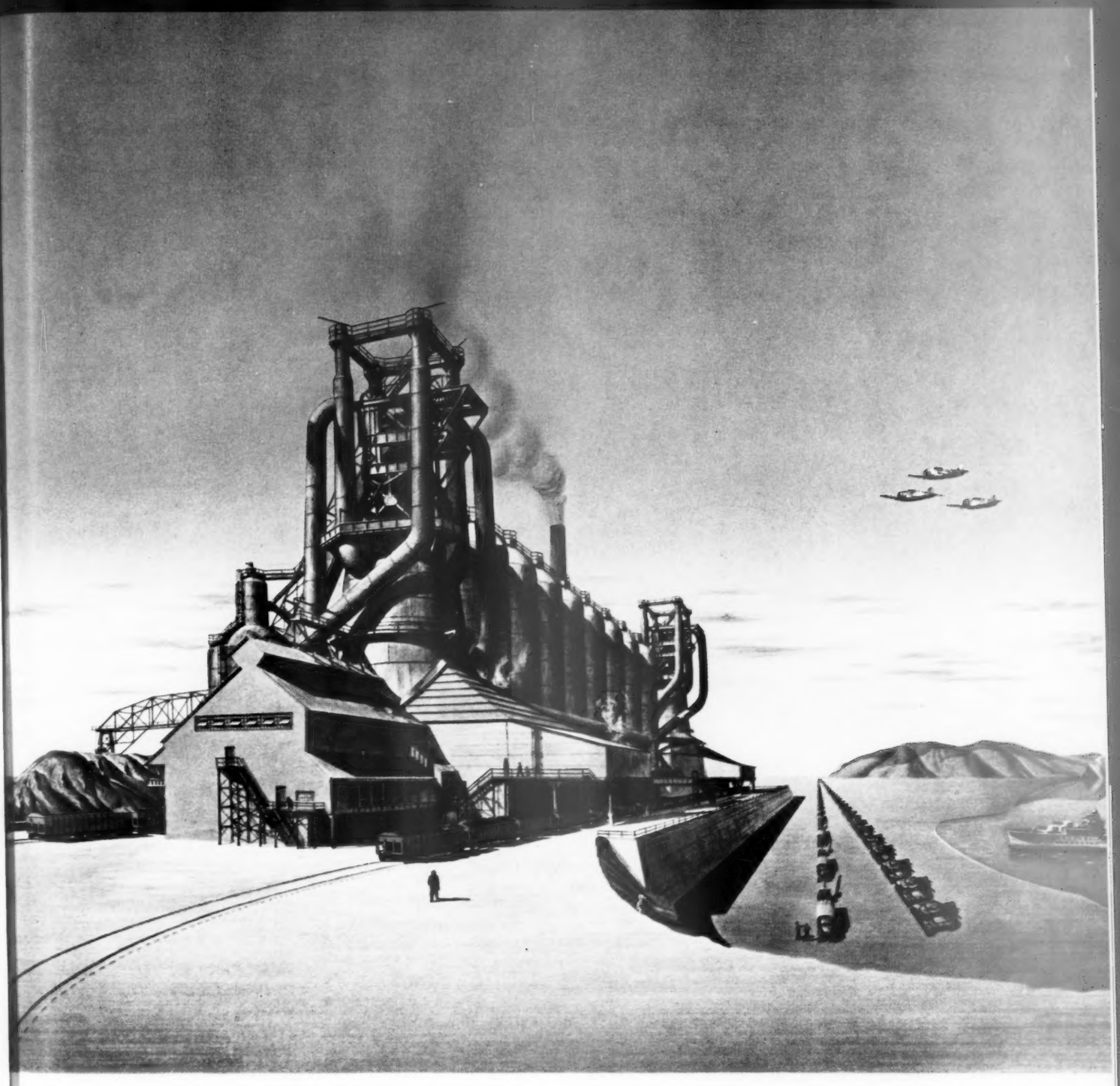
■ Latest in their line of machine tool accessories is the radius dresser, designed by George Scheer Company, New York, N. Y., to speed up and simplify the dressing of grinding wheels for various types of grinding work.

The device is used in conjunction with a diamond tool to dress wheels preparatory to grinding forming tools, fillets, end mills, for grinding rake angles on collapsible tap chasers. It will dress either convex or concave radii from 0—1" and can be set with regular one inch micrometer, depth micrometer or height gage.

The base is made of cast iron especially alloyed, rough machined and normalized before finishing, to prevent changing. Swinging arm is made of cast iron and heat treated before finishing. Centers are turned at both point and sides, hardened and lapped true.

PALLET HANDLING RACKS

■ The storing of turbine parts in pallet handling racks at one of General Electric's shops has relieved yard storage areas and facilitated classification and delivery of the pieces. Incoming materials are classified and put on pallets for unit operations in the shop; then stored



Steel Is More Precious Than Gold

At the most critical moment in our history, we bury our gold in some mid-western field, and work frantically to produce more and more of the steel which is far more precious to us *now*, than gold.

This is a *steel* war. The greatest hope of mankind is the fact that America alone can produce 50% *more* steel than all the Axis-dominated countries.

The process of steel-making starts at the blast furnace, and a blast furnace needs enormous quantities of coke. Censorship forbids us to tell how greatly coke production has been increased with new Koppers coke ovens, but it is a heart-warming figure.

These ovens convert millions of tons of coal into coke, gas and other products, vast quantities of which are further processed by Koppers into chemicals used in the explosives, plastics, synthetics, rubber, dyes and drugs now so important to military success.

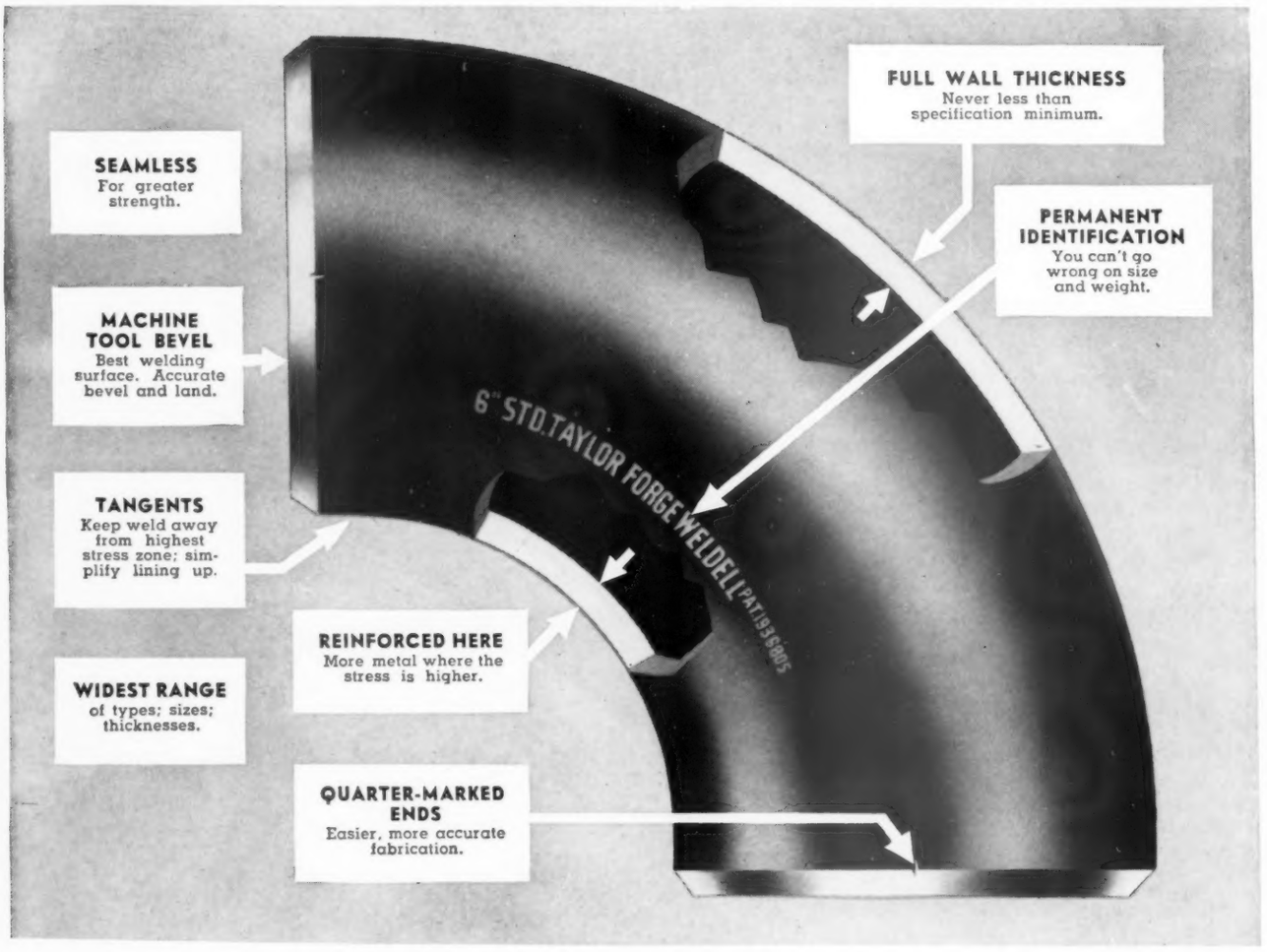
Among the many products Koppers has furnished for years to the steel industry are Fast's self-aligning couplings; special D-H-S Bronze for gears, slippers, segments, housing nuts, and bearings; iron gate valves; pressure-treated ties and timber; roofing, waterproofing and road materials; piston rings; deodorants and disinfectants.

These products help make it possible to produce ever-increasing quantities of steel for tanks, guns, planes, ships and munitions. *It's up to American Industry.* Koppers Company, Pittsburgh, Pa.

KOPPERS

THE INDUSTRY THAT SERVES ALL INDUSTRY

BUY UNITED STATES DEFENSE BONDS AND STAMPS



These features of WeldELLS

mean more than ever now

WHEN purchases are restricted to essential uses — uses, in other words, that contribute to winning a war that *must* be won — then, surely, is the time of times to *know what you're getting.*

So once more we show you here, in boiled down, quick-reading form, the facts about WeldELLS — the eight features of WeldELLS that contributes *something* to every pipe welding job — in ease of installation, in economy, in speed, in safety, in soundness, in the lasting satisfaction that goes with using the *best.*

If your requirement is vital enough to rate a preference, it is vital enough to rate the finest — particularly when the finest *costs no more.* Busy though we are, we want to sell you welding fittings at their best — and so do our distributors.

TAYLOR FORGE & PIPE WORKS, ***General Offices & Works:*** **Chicago, P.O. Box 485**
New York Office: **50 Church Street** • ***Philadelphia Office:*** **Broad Street Station Building**

When writing Taylor Forge & Pipe Works please mention Purchasing

in these racks until called for by the production department, when delivery is made direct to the job by a fork truck.

This system not only reduces handling costs, but also eliminates the possibility of loss from mislaid materials. Operations are not hindered by inclement weather. Inventories are simplified. The setup of the racks can be rearranged without disturbing any of the materials or stock inventories in the racks. The system is particularly advantageous at the present time, when expansion of manufacturing facilities so often puts space at a premium.

DUST COLLECTORS



■ A new line of self-contained dust collector units in three sizes have just been announced by Hammond Machinery Builders, Inc., Kalamazoo, Michigan.

The three sizes are of a new, compact, functional design, thus requiring a minimum of floor space. Filtering capacities range from 275 c.f.m. to 1100 c.f.m. with air velocities in inlet ducts up to 6000 ft. per minute. There are two standard inlets in each unit, 3″ in diameter on model 30, 4″ in diameter on model 40, and 5″ in diameter on model 50. Inlets in special locations and of special sizes, other than standard sizes furnished, can be supplied on all models if desired. Motor capacity is ¼ h.p. on model 30; ½ h.p., model 40; 1 h.p., model 50. The motor, fan, fan housing, and electrical connections are all fitted in a removable plate, making all moving parts readily accessible for inspection.

The filters are the "throw away" type made of glass fiber. There are three filters in each unit through which the air passes. They are easily removed for cleaning or replacement through an ample opening in the back of the unit. Models 40 and 50 are supplied with a filter shaking mechanism by which a large part of the dirt can be shaken from the filters into the bottom pan.

The air enters the inlets and passes down to the bottom of the unit over a system of baffle plates which straighten out the air currents and cause the larger particles to drop immediately into the dust pan. Thus only the finer particles reach the filters and the filter load is materially reduced. The air passes from





ROEBLING

Plain Rubber

PORTABLE CABLES AND CORDS

It takes a tough hide to stand up under the abuse of being jerked around, dragged through mud, over rocky ground, even under cars and trucks. But Roebling Portable Cables and Cords have proved themselves in just that kind of service—on electric shovels, air compressors, tools and other portable equipment.

First, they have flexible rope-laid conductors—that mean ease of reeling or handling. Then they are carefully insulated with a tough, high grade rubber. And finally, they get an outer jacket of tough, abrasive and moisture-resistant rubber compound.

ROECLAD—This type has rubber fillers and a heavy twine reinforcing braid between the core and tough rubber jacket. For *exceptional* resistance to impact and crushing.

ROECABLE—This type has jute or other fiber fillers served with rubber filled tape under the tough rubber jacket. For extra flexibility, but less resistance than ROECLAD to impact and crushing.

Both types furnished with or without ground wires, with or without shielding as specified. Inquiries should be referred to our nearest office.





OVER 60 OTHER TYPES

JR ROEBLING

of Roebling Electrical Wires and Cables are made in our mills under complete Roebling supervision and inspection—from copper bar to final reeling or spooling. They include: Power Cables, Bare Wire and Strand, Building Wire, Portable Cords and many others.

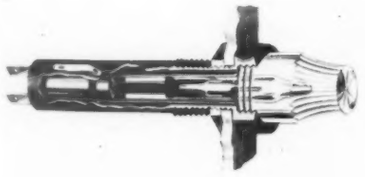
JOHN A. ROEBLING'S SONS COMPANY

TRENTON, NEW JERSEY • Branches and Warehouses in Principal Cities

the bottom of the unit up through the filters and is exhausted out the top by the blower wheel. The air is already filtered when it reaches the fan so the fan and motor are not exposed to dust-laden air.

These units have a multitude of applications with various types of grinders in plants which do not have central exhaust systems, and in plants whose central exhaust system is not available to numerous isolated grinders.

INDICATOR LIGHT



■ This is the time, trouble and money-saving service rendered to remote control by an indicator manufactured by Littelfuse Incorporated, Chicago, Ill. It is widely used in railway signaling equipment and aircraft applications. But it is equally applicable to any circuits, circuit breakers, line switches, etc.

When installed at any convenient or desirable point in connection with remote motor control it works instantly, with a plainly visible signal to show "on" or "off." When the circuit breaker opens the light goes on. It can be had for 24 or 48 volt filament bulb, with which no resistor is used. Otherwise it uses a built-in 200,000 ohm protective resistor, in series with a neon lamp. The resistor prevents the lamp from blowing out, as ordinary lamps do, on unexpected high voltages. In the Littelfuse installation the lamp glows on currents as low as 100 microamperes.

The Littelfuse Indicator, has a black bakelite body, and transparent molded cap. It is made for panels up to 5/16" thick and ½" diameter mounting hole. Overall length 2" below panel, ⅜" above panel. The rating is 90 to 250 volts.

MAGNETIC REVERSING STARTERS

■ A new line of alternating-current combination magnetic reversing starters for full-voltage starting and reversing of squirrel-cage induction motors has been announced by the General Electric Company. Also suitable for the primary control of wound-rotor motors, these single-unit starters consists of two mechanically interlocked reversing contactors, a two pole overload relay, and either a circuit breaker or a fusible or nonfusible motor-circuit switch.

The starters are designed to provide full-voltage reversing control and short-circuit protection in one unit to save space and installation time, to provide greater protection for equipment and operators, and to improve appearance. They are completely wired and ready to

2 WAYS TO SPEED UP

with

Aloxite Brand Coated Abrasives



1 *For instance, Aloxite Brand Abrasive Cloth supplied in Economy Rolls, a convenient form for fixture use in lathe lapping operations on main and crank pin bearing surfaces.*



2 *In sheet form Aloxite Brand Cloth is used on all types of hand polishing jobs. Skilled craftsmen always find they can produce remarkably fine results.*

STUDY these pictures. They show two hand methods of using Aloxite Brand Aluminum Oxide Cloth to do a faster and better finishing job. Aloxite Brand Coated Abrasives can be put to work on many operations requiring the removal of stock and the production of smooth surfaces.

There's an Aloxite Brand Coated Abrasive suitable for every kind of finishing job . . . from fine finishing of sheet metal surfaces to the delicate hand polishing of small steel dies. And you can count on these coated abrasives to cut faster, last longer and give the finish required on every job. Ask the Carborundum representative next time he calls.

THE CARBORUNDUM COMPANY

REG. U. S. PAT. OFF.

Niagara Falls, N. Y.

Sales Offices and Warehouses in New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, Pittsburgh, Cincinnati, Grand Rapids

{Carborundum and Aloxite are registered trade-marks of} {and indicate manufacture by The Carborundum Company}

ALOXITE BRAND ALUMINUM OXIDE CLOTH

in Sheets and Rolls

Cuts faster lasts longer . . . gives more uniform finish

CARBORUNDUM ABRASIVE PRODUCTS

When writing The Carborundum Company please mention Purchasing



CM "INSWELL"
STEEL CHAIN

Industry rightfully depends on its greater strength, safety and long wear

CM "Inswell" Electric Welded Steel Chain is not ordinary chain . . . it's as different as day and night!

The patented "Inswell" electric weld process puts extra metal, for extra strength and safety at the critical point of each link . . . at the weld. Too, "Inswell" welds are at the side, with the extra metal inside. This "Inswell" feature contributes to faster handling and freedom from "kinking".

Formed from a special analysis steel, every link of *CM* "Inswell" Electric Welded Steel Chain is uniform in strength, size, durability and elastic limit . . . is carefully tested to well beyond safe working loads.

For the extra service-time demanded by today's production needs, specify *CM* "Inswell" Electric Welded Steel Chain. There is a size and type for every industrial application.

Call your mill supply distributor for full details, or write for descriptive bulletin.

COLUMBUS-McKINNON *Chain* CORPORATION

(Affiliated with Chisholm-Moore Hoist Corporation)

120 FREMONT AVE. TONAWANDA, N. Y.

Branch Offices: NEW YORK · CHICAGO · CLEVELAND

operate after connection of incoming power lines, outgoing motor lines, and control circuit. The line includes size 0 to 4 starters covering single-phase and 3-phase motors in sizes up to and including 100 hp at 440 or 550 volts.

The fusible forms combine a manually operated motor circuit switch with clips for cartridge-type fuses. Under short-circuit conditions, the fuses provide fast interruption of circuits having maximum available current of 10,000 amperes at rated voltage. The motor circuit switch is operated from the outside of the enclosing case by a handle so interlocked with the cover that the switch must be in the OFF position before the cover can be opened. This makes it impossible for an operator to attempt to make adjustments on the inside of the enclosure without first opening the circuit.

The circuit breaker forms provide simultaneous tripping of all phases on short circuits, and have a trip-free mechanism which prevents holding the breaker closed under short-circuit conditions. The breaker can be reset after operation by returning the operating handle to the OFF position. Breakers in the smaller ratings have bimetal thermal trip units only and the larger breaker ratings have interchangeable bimetal thermal trips as well as magnetic instantaneous trips.

When the starters are used in conjunction with a momentary contact push-button station, undervoltage protection is provided by an electrical interlock on each contactor. An isothermic temperature overload relay protects the motor from dangerous overheating caused by overloads or other conditions.

The contactors have layer-wound coils, molded arc chutes, and readily accessible contacts, and are mechanically interlocked so that only one contactor can be closed at a time. The starters are available in Type 1 general-purpose enclosures, Type 1A semidust enclosures, Type 5 dust-tight enclosures, or Type 4 water-tight enclosures.

WOMEN'S SAFETY SHOES



■ The Lehigh Safety Shoe Co., Inc., of Allentown, Pa., America's largest maker of industrial safety shoes "engineered to the job," is proud to be first to offer safety shoes for women-in-industry. Details of construction are as follows:

Double-layer thermoplastic "toe-shield" is concealed under leather toe cap. Lighter than steel-toe-box used in men's safety shoes, yet plenty strong enough

YOU GET ALL FIVE

Facing every purchasing executive today is the big task of maintaining a STEADY FLOW of performance-proved materials from a DEPENDABLE SUPPLY SOURCE and being assured of a competent advisory or technical service to correctly apply them. It is the reason you will find more and more Purchasing Agents, where cleaning processes are involved, taking advantage of

WAR-TIME OAKITE CLEANING SERVICE

It Brings You These 5 Main Advantages

1 *Dependable supply source . . . prompt deliveries from 35 strategically located warehouse points.*

2 *Over 60 different specialized Oakite materials that meet every war production cleaning requirement.*

3 *Nation-wide service staff to correctly apply them.*

4 *Engineering and Chemical Laboratory help on special or new cleaning or related problems.*

5 *33 years' experience successfully serving American and Canadian industries in connection with production cleaning, maintenance cleaning or plant sanitation.*

Name YOUR Problem . . . Let Us Help You NOW!

If priorities may soon require you to replace solvent-type materials for metal cleaning; if you must find NEW cleaning materials to handle war supply items NEW to your plant; if you want to speed up production on your present work; if you must conserve equipment through more efficient maintenance; if you want help in minimizing fire hazards or increasing efficiency of plant sanitation . . . ask us. We can help! Inquiries promptly answered.

Manufactured only by
OAKITE PRODUCTS, INC., 54 Thames Street, NEW YORK, N. Y.
Representatives in All Principal Cities of the U. S. and Canada

PLEDGED TO VICTORY

Oakite Materials and Methods are saving time, money, and effort on these and related jobs:

Cleaning before cadmium plating, galvanizing, tinning, etc.

—

Cleaning aluminum before spot-welding or anodizing

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Machining ferrous and non-ferrous metals

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Rust-Proofing

—

Burnishing and tumbling

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Descaling water-cooled equipment, Diesel engine cooling systems, etc.

—

Stripping paint from equipment

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Cleaning plant windows, lighting fixtures, floors, walls, etc.

—

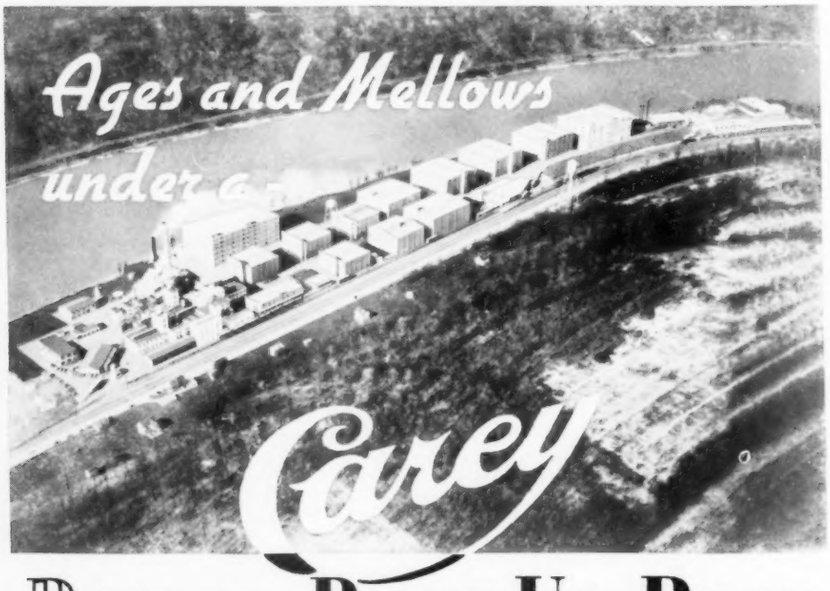
Lavatory, washroom, locker room, shower stall sanitation

OAKITE *Specialized* **CLEANING**
MATERIALS...METHODS...SERVICE FOR EVERY CLEANING REQUIREMENT

When writing Oakite Products, Inc. please mention Purchasing



"GOLDEN WEDDING"



BONDED BUILT-UP ROOF

The 35,290 square feet of concrete roof deck of the six-story warehouse, is covered with roof insulation and a 3-ply, CAREY Built-Up Roof, bonded for 10 years.

● Makers of famous products are consistent buyers of other famous products. Accordingly, Jos. S. Finch & Co., Inc., Distillers, Schenley, Pa., selected a CAREY Bonded Built-Up Roof for their six story warehouse No. 15-16. The re-roofing job was done by Frank Limbach & Company, Roofing Contractors of Pittsburgh, Pa.

CAREY Roofs wear longer—cost LESS per year. Whatever your roof problem, put it up to CAREY for economical service. Write for details, address Dept. 68.

The Philip Carey Manufacturing Company
Dependable Products Since 1873
LOCKLAND, CINCINNATI, OHIO
IN CANADA: THE PHILIP CAREY COMPANY, LTD. Office and Factory LENNOXVILLE, P. Q.

to withstand the impact of falling tools or materials normally handled by women. A sturdy, black elk or calfskin oxford, built on a nurses' shoe last that will fit almost any foot in complete comfort is the only style available. Fibre-pegged heel and fibre-tip laces eliminate the danger of sparks for munitions-plant workers!

WELDING REPLACES MACHINING



■ Development of welding gun attachments for balancing machines by Progressive Welder Company, Detroit, Mich., has eliminated the necessity of "balance-machining" of rotating parts on which accurate dynamic balance is required—also making unnecessary leaving of excess stock on parts for this purpose.

The gun in accompanying photo is fitted with a bracket which hooks over the ring gear of a hydraulic coupling. The gun is swung over and a balancing lug of the correct weight needed is spot-welded to the housing.

PLUG-IN PHONE

■ Designed especially to facilitate moving of stations and expansion of the automatic interior telephone system to cope with today's rapid changes in office and plant layouts, this new telephone may be plugged into any terminal box, which requires only a single strand of triple-conductor wire to be run to the switchboard, no cable being used.

This new instrument may be used in the same system with loud-speaking name-touch Executive Stations. The center of the dial is a code ringing button which is pressed to code signal where several persons may be served by one telephone, or when using the built-in General Call paging circuit. All plug-in telephones are interchangeable. New also is the digit dial. Dialing any number automatically connects to the desired party in a secret conversation. Provision is also included for secret conference among three or more persons. Capacity of system: 5 to 55 lines, with extension possibilities to 100 or more stations. This is made by Select-O-Phone Company, Providence, R. I.

FED BY THE FORGE OF FREEDOM

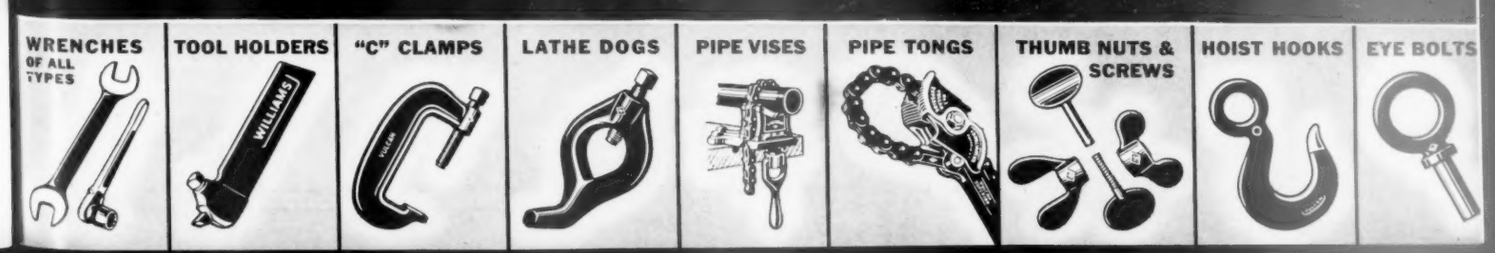
IT'S a long way from the heat and din of Williams' forges to this hidden airfield in the south Pacific. But no matter how perilous the task, planes must be serviced instantly. To speed the job and make certain our victory, the men at Williams' are working to the limit of their capacity turning out, among other vital needs, tools for the Air Corps and forged parts for the ships they fly.

Illustrated: The Curtiss P-40D Fighter

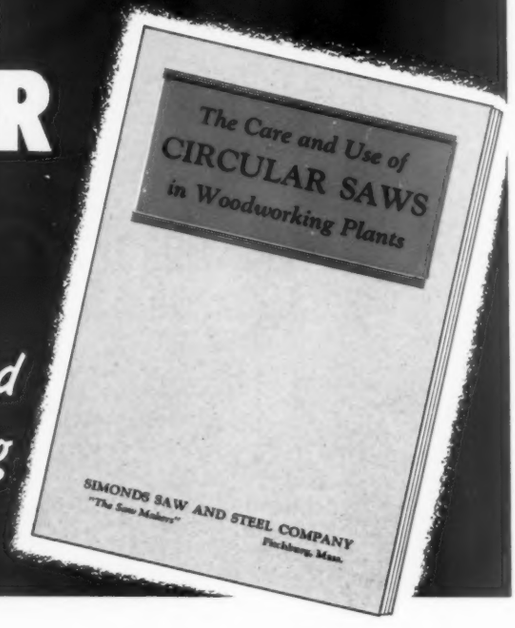
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WILLIAMS
SUPERIOR DROP-FORGED TOOLS

Headquarters
for over half a century for
DROP-FORGINGS and DROP-FORGED TOOLS

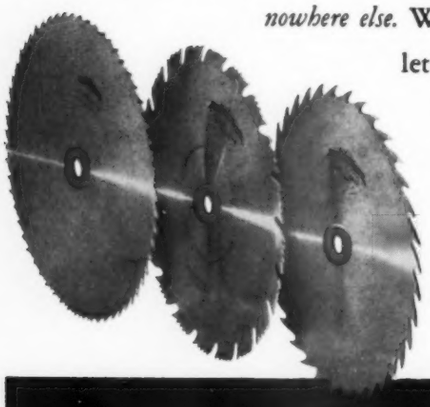


HOW TO GET
EVEN LONGER LIFE
from the Longest-lived Woodcutting Saws



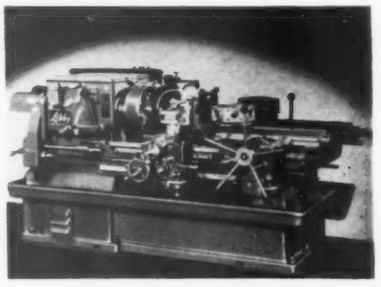
This free 88-page pocket book is packed with saw-saving information. It tells everything any operator needs to know in order to get . . . out of "Red Center" Circular Saws . . . every bit of the extra cutting service that's built into them in Simonds' controlled-conditions plant, *where saws are made as they can be made nowhere else.* Write today, on your company letterhead, for free copies of this book . . . it will help your plant get smoother, faster and straighter cutting, at lower cost than ever before.

SIMONDS SAW AND STEEL CO.
Fitchburg, Mass.



SIMONDS
Famous Family of Quality Cutting Tools

TURRET LATHE



■ A new Universal ram type turret lathe with collet chuck capacity 2" diameter, 22" turning length, and having 20" swing over ways, is announced by the International Machine Tool Corporation, Libby Division, Indianapolis, Indiana.

The machine is supplied complete with tools for both bar work and chucking work, and will accommodate 8", 10" and 12" diameter chucks. In addition, the machine may be equipped with special attachments which conform to specific applications or specific types of turret lathe work. These attachments include bar feed and collet chuck, taper attachment, and threading attachment.

The one piece bed and headstock is cast from nickel semi-steel in the same foundry in which Libby International heavy duty turret lathe beds are cast. The machine is extra wide across the bed ways, measuring 12½" which is approximately 43% wider than is usually found on machines of this capacity. The heavy bed has internal cross ribs and longitudinal ribs that run the entire length to provide reinforcement that rigidly supports the carriages and permits accurate heavy cuts. Headstock walls extend well above the spindle providing the spindle bearing with solid metal support, and heavy cross ribs inside the headstock rigidly brace and support the shaft bearing seats. The base and pan of this machine are also cast integral and comprise one heavy sturdy casting that provides an ideal support to the bed and headstock casting.

The wide 12½" bed ways are equipped with hardened steel ways which are securely dovetailed into the cast iron bed casting. An unique double taper method holds the hardened steel ways without screws and provides a permanent assembly. After assembly, the hardened steel ways are ground in perfect alignment with the spindle which assures permanent accuracy.

EXTRA-SMALL SOCKETS

■ This 18-piece assortment of ¼" square drive sockets and attachments is designed especially for adjustments to the many small nuts and bolts found on cars, trucks, busses, airplanes, electric refrigeration systems, etc.

It is ideal for work on radios, starters, ignition parts, carburetors, heaters, aviation instruments, generators, small electrical apparatus, etc. Contents include eight sockets with openings from $\frac{3}{16}$" to $\frac{7}{16}$" for adjustments to hexagon nuts and



AN INDUSTRIAL ALLY

American industry is producing now as it has never produced before, making the armaments, fighting machines and war supplies essential to victory. There is a vital new force today which is being felt in every phase of this production—a force which was just a feeble spark a few decades ago—the Plastics Industry.

The General Electric Plastics Department is justifiably proud of the part which it has played in the development of this industry, for at General Electric it has been a planned development based on experience, sound engineering, and the most complete facilities for the manufacture of all types of finished molded and laminated plastics.

Producing parts to customers' specifications, G-E's Plastics Department has solved many problems and has contributed to the growth of many new and better products, working hand in hand with American Industry in its effort to ensure America's future. Plastics Department, One Plastics Avenue, Pittsfield, Massachusetts.

PLASTICS DEPARTMENT

GENERAL ELECTRIC

PD-6

WARREN, O. COLUMBIA, PA.
ATLANTA, GA. PROVIDENCE, R. I.



PLANT FACILITIES

To Save Time In Your Wartime Production Schedule!

Wherever piping plays a part in your change-over to wartime production, in expanding capacity or in maintaining an uninterrupted flow of goods . . . Grinnell's plant facilities can save you valuable time.

Prefabricated Piping by Grinnell saves construction time by supplying complete piping systems in speedily-erected, pre-tested sub-assemblies.

Genspring Constant-Support Hangers, prefitted to exact engineered layouts, speed installation of power piping.

Grinnell Automatic Sprinklers, installed with minimum disruption of production, guard against time and material loss by fire.

Grinnell Thermolier Unit Heaters permit quick installation of efficient, uniform heating . . . prevent workers' discomfort.

Grinnell Pipe Fittings make stronger, tighter pipe connections . . . minimize repairs.

Amco Humidification Systems help textile mills and process plants speed up production that depends on uniform humidity.

Write for detailed booklets on these services. Grinnell Company, Inc., Executive Offices, Providence, R. I. Branch offices in principal cities.

GRINNELL

WHENEVER **PIPING** IS INVOLVED

Grinnell Company, Inc. . . . Grinnell Company of the Pacific . . . Grinnell Company of Canada, Ltd. . . . General Fire Extinguisher Company . . . American Moistening Company . . . Columbia Malleable Castings Corp. . . . The Ontario Malleable Iron Co., Ltd.



bolts; three sockets with openings from ¼" to ⅜" for square nuts and bolts; 4½" sliding "T" handle; 2" and 6" extensions; 4" flexible extension; 6" spinner handle; 5¾" hinge handle and 3½" cross handle.

All pieces with the exception of the spinner handle are made with rust-resistant finish. Socket walls are thin for getting in to close quarters, but of exceptional strength. All attachments are slender for reaching the "hard-to-get-at" places.

The entire set is furnished in a pocket size metal case which measures only 6¼" x 3" x 1". Complete, the set weighs only 1¾ lbs.

NEW BLACKOUT BULB UNIT



Important changes in blackout bulb specifications are announced by the Wabash Appliance Corporation, Brooklyn, N. Y., whose silver-lined Blackout bulb placed on the market in early January was put through exhaustive blackout tests in actual city-wide blackouts in practically every State. Specification changes are based on the results of these tests, as well as on various official recommendations.

The most important specification change is in color of light from blue and red to the deep orange recommended by the Office of Civilian Defense. Other changes are in size which is smaller, in reduced current consumption to 15 watts, in elimination of the former built-in reflector, and in the improved type of heavy black silicate coating to prevent light leakage.

The deep orange light that the new unit provides, is said to be ample to permit room occupants to see each other plainly, as well as furniture, doors and windows. The bulb will fit any household socket, and will list at 45c.

WOOD FILE

■ Immediately following WPB Order L 73 of April 2, curtailing metal office furniture production at once and halting it on May 31, Horder's Incorporated, Chicago distributors of office supplies, business equipment and paper, announced a new composite wood filing cabinet using only 2.7% metal. Ten fibre rollers support each full suspension drawer. The file is now in production at an Indiana factory.



When you gotta jump—you gotta jump! It's great to have that feeling of confidence that comes from knowing every part of the 'chute is as trustworthy as human hands and machines can make it.

Confidence in all equipment for defense—in its superiority and dependability—instills the victory spirit in our armed forces.

Indirectly helping to build this confidence is our big job—competently handled by veteran springmakers with a record earned in peace-time for springs and small stampings of integrity.

Wallace Barnes Company
DIVISION OF ASSOCIATED SPRING CORPORATION
BRISTOL, CONNECTICUT, U. S. A.

Barnes-made Springs *for Victory*



When writing Wallace Barnes Company please mention Purchasing

MATHEWS MEETS TOTAL WAR WITH DOUBLED CAPACITY

● Anticipating a heavy demand for Mathews equipment, we have for the past year and one-half steadily increased the size of our Engineering and Manufacturing Departments.

Today, we are in a position to engineer, manufacture and ship twice the quantity of conveying equipment that would have been possible two years ago.

Mathews is making every effort to meet the conveyer demands of all essential industries. War requirements come first and vital materials must be moved. Civilian requirements cannot be considered until the big job is finished.



MATHEWS CONVEYER COMPANY

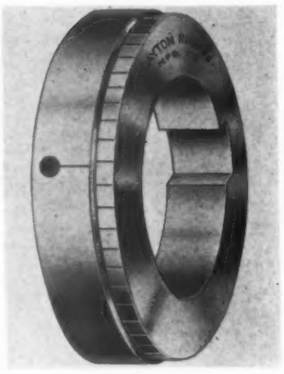
ELLWOOD CITY, PENNA.

Field Engineers and Sales Offices located in 30 Industrial Centers

DOUBLED CAPACITY FOR WAR PRODUCTION

Stepping up our productive capacity month after month has barely enabled us to keep pace with mounting war orders. As long as this condition exists, it becomes increasingly difficult to meet civilian requirements. Our one big job is the handling of war material. That job must come first.

ADJUSTABLE SPACING COLLARS



■ The Dayton Rogers Manufacturing Company, Minneapolis, Minnesota, announces new precision adjustable spacing collars now made in eleven sizes that are well adapted to all gang milling setups. They are so constructed that they can be used to an advantage in accurately spacing all straddle milling, gang milling, and multiple slotting milling machine setups. They automatically eliminate the use of shims.

These adjustable spacing collars have a maximum adjustment of 1/16" and are graduated by thousandths; however, a .00025 graduation is easily obtained, assuring accurate precision spacing of milling machine cutters at all times. Eleven sizes are made for cutter arbors from 5/8" to 3".

ABRASIVE BELT SURFACER

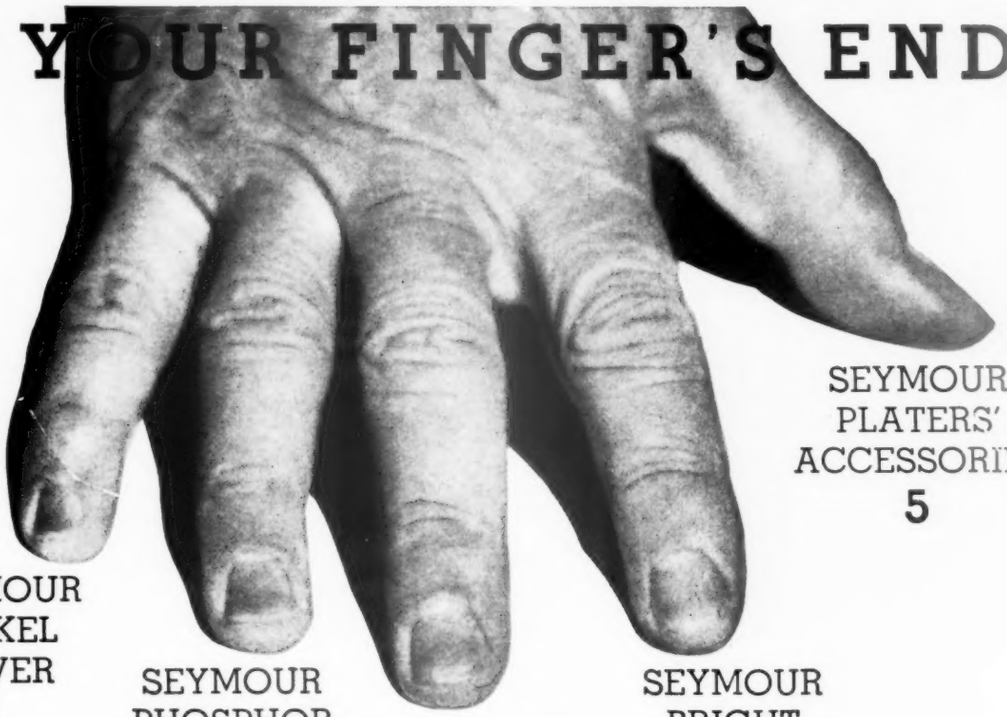


■ A new modern designed "600" Dri-N-Wet Abrasive Belt Surfacer has just been placed on the market by Hammond Machinery Builders, Inc., Kalamazoo, Michigan.

The Hammond "600" line of Abrasive Belt Surfaces, it is claimed, incorporate numerous features making it one of the most flexible lines on the market. The machine can be adjusted from vertical to horizontal position while it is running. The belt tension and tracking device can likewise be adjusted while running, and is quickly accomplished by two con-

Have you the qualities of our products

AT YOUR FINGER'S END?



SEYMOUR NICKEL SILVER 1

SEYMOUR PHOSPHOR BRONZE 2

SEYMOUR NICKEL ANODES 3

SEYMOUR BRIGHT NICKEL 4

SEYMOUR PLATERS' ACCESSORIES 5

SINCE the Emergency, "Seymour" has shipped Defense plants thousands of tons of non-ferrous alloys, anodes and plating equipment. To get the most out of these products, many customers use the free services offered by our laboratories. Doubtless, many more would be benefited by a better knowledge of the properties of the "Seymour" products they are using. Following reminder information may help:

1. SEYMOUR NICKEL SILVER is an alloy of copper, nickel and zinc. Fine grain, good corrosion resistance and a silvery white color make it the ideal base for silver, nickel and chromium plating. Takes any hardness from dead soft to spring temper. Excellent for deep draws and difficult spinning. Leaded, it machines freely.

2. SEYMOUR PHOSPHOR BRONZE is an alloy of copper, tin and phosphorus. Highly resistant to corrosion, abrasion, friction and fatigue. Springs made of it stand almost indefinite flexure. Practically indifferent to thermal change in most applications. In all ranges of hardness and leaded for machining.

3. SEYMOUR NICKEL ANODES are made of virgin nickel, melted in the electric furnace under pyrometric control and laboratory check. Outstanding is the "Seycast" 99%+ cast nickel anode with radial "anchored" grains that tend to eliminate loose nickel in low pH baths. Designed primarily for Bright Nickel, but will give excellent results in any hot Watts bath having a pH of 4.5 (electrometric) or lower.

4. SEYMOUR BRIGHT NICKEL is an organic plating process free from promoter metal, stable, easily controlled. Utilizes the hot Watts bath and produces brilliant, silvery white deposits over copper and brass, also direct on steel. No coloring required after plating. The work leaves the final rinse with a bright deposit.

Glad to furnish details and laboratory service on any product without obligation.

SEYMOUR

NON-FERROUS ALLOYS SINCE 1878

THE SEYMOUR MANUFACTURING CO.

SEYMOUR, CONN.

The Dependable Lamp Backed by a half-century of electrical experience



Westinghouse Mazda



Make sure you are getting top-notch performance and peak economy from your fluorescent lighting system by standardizing on top-quality Westinghouse Mazda Fluorescent Lamps. These efficient lamps are backed by the 55-year-old Westinghouse reputation for advanced engineering and dependable manufacturing. You'll find Westinghouse Mazda Fluorescent Lamps are high in light output, uniform in color, and long lasting.

Get the utmost in economy and dependability by specifying precision-built Westinghouse Mazda Fluorescent Lamps. And, be sure to take advantage of the liberal discounts offered by your Westinghouse Mazda Lamp Distributor.

When writing Westinghouse Electric and Manufacturing Company please mention Purchasing



Buy Westinghouse Mazda Fluorescent Lamps at liberal discounts

You can enjoy liberal discounts on Westinghouse Mazda Fluorescent Lamps either through quantity purchases or regular Westinghouse Mazda Lamp Contracts. Your local Westinghouse Mazda Lamp Distributor will gladly give you complete details.

In fact, whenever there is any problem concerning lighting, enlist the friendly help of your Westinghouse Mazda Lamp Distributor. By being constantly informed of the latest developments in fluorescent, he is prepared to offer you sound, up-to-the-minute information and advice. Also, he is thoroughly familiar with proven practices on how to get the most efficient operation out of lighting systems. Make use of these valuable services your Westinghouse Mazda Lamp Distributor offers you.

Westinghouse Electric and Manufacturing Company, Lamp Division, Bloomfield, New Jersey.

For More Top-Quality Lighting Installations—

Westinghouse MAZDA FLUORESCENT LAMPS

When writing Westinghouse Electric and Manufacturing Company please mention Purchasing

Medart Announces!



Outlast All Others

1—Black Jackets are Tougher

New, groove-gripping unit jackets of special flexible fabric filled with tough, live black rubber. Transmit maximum power from and to the sheaves. Give "All-Out" defense protection to the vital working parts within.

2—"Neutralized" Cable-Cores Defy Hard Work

Parallel "Cable-Core" construction places load carrying cable-like cords in the neutral section where deteriorating "flexations" are at an absolute minimum. "Cable-Cores" are composed of powerful fiber strands, specially woven and prestretched, then impregnated and imbedded in selected cool-running, slow-aging rubber compound. A 100% Tough Construction.

3—Built-In, Uniform Flexibility

Stretch-taking section above "Cable-Cores" is made of special extensible rubber compounds. Compression section below "Cable-Cores" is constructed to resist "crimpage" when belts are flexed around pulleys. All sections are consolidated into one balanced unit that will give you "POWER TRAVEL AT REDUCED RATES" — economical, trouble-free operation for top speed production.

4—Tailored to the Grooves

Belts are cured in precision molds to produce exact cross sections that will fit true in the sheave grooves. This positive "groove-gripping" is far more important than matched length if matched belts are to pull together.

FREE HELPFUL CATALOGS



Explain All You Need To Know About Power Transmission Equipment

No. 56-V: V-Belts and V-Sheaves
No. 56-G: Gears and Sprockets
No. 66: All Other Power Transmission Equipment

WRITE TODAY

COMPLETE POWER TRANSMISSION EQUIPMENT

SAVE STEEL for DEFENSE



Use WOOD PULLEYS

Block, Cap or Arm Type For Every Need

BALANCED CONSTRUCTION

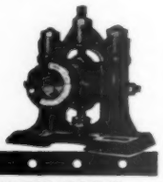
BABBITTED BEARINGS



ALL TYPES

Solid Journal or Split
Plain Babbitted
Wick or Ring Oiling
Rigid Flat or Angle
Ball & Socket Adjustable
And Many Others

Any style — for any purpose. All carefully made, lined-up and finished for long and trouble-free service.



FLANGE COUPLINGS



Permanently Rigid!

Made for installations requiring great driving power and rigidity of alignment. We can furnish this coupling force fitted to our turned and polished Shafting. Inquire about our Service.

You Can Depend Upon Medart

Sheaves—Any Purpose!

Bicycle



For Cable Hoists

Shock resisting, with steel lined long wearing and accurate grooves; or plain grooves.



Manila Rope

DRIVES AND ACCESSORIES

Correctly designed sheaves, tension carriages (horizontal or vertical), track hangers, yoke sheaves and tension weights for any type of drive — and for maximum efficiency.

COMPLETE INSTALLATIONS

Power Travel at Reduced Rates

THE MEDART COMPANY

MANUFACTURING ENGINEERS of ALL TRANSMISSION EQUIPMENT

General Offices and Works
3530 DE KALB STREET • ST. LOUIS, MISSOURI

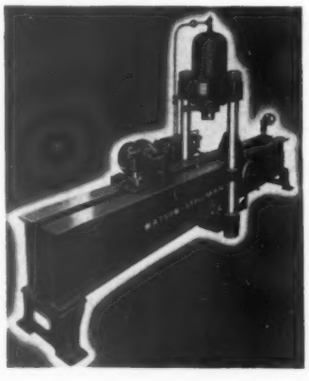
Sales Offices in All Principal Cities

veniently located handles. The machine is totally enclosed for safety and the "600" Dri machine is arranged for an individual dust collector or for connection to an exhaust system. The abrasive belt pulleys are made of cast iron and are dynamically balanced. They run on dust-proof ball bearings and are properly lubricated. The work table can be adjusted to any desired working angle and is available as bench or floor model.

The Hammond "600" Dri-N-Wet machine (floor model illustrated) has all the outstanding features of the Hammond "600" Dri plus providing wet operation for grinding, polishing or surfacing. It is equipped with tank and pump unit and can also be equipped for water main connection only. Also furnished in bench model with water main connection only. Both are equipped with damper or spray control and two nozzles for uniform spraying. Should dry operation be desired at any time on either machine, it is necessary to merely turn off the water, remove drain connection and attach air exhaust system at this point. Adjustable from vertical to horizontal position while running. Vacuum cup drive pulleys eliminating belt slippage furnished on wet machines only.

Wet operation has many important advantages permitting faster cutting at lower costs and prevents discoloration, fracturing, chipping, warping, etc.

STRAIGHTENING PRESS



■ An improved 125-ton straightening press, embodying extremely sensitive control by a single hand lever, has been developed by The Watson-Stillman Co., Roselle, N. J., for straightening gun barrels.

The press is also suitable for straightening shafting, forgings, etc. Space between columns is 18″, vertical opening 17⅞″ and stroke, 10″. The unit is of the manually movable press type, a handwheel controlling movement of the press along the table, which is 14′ long, 17″ wide and equipped with bending blocks, centers and rollers. Advanced speed is 87″ per minute, pressing speed 13½″ per minute, and return speed, 78″ per minute.

The entire unit weighs approximately 7500 lbs., is 10′ high, and requires 14′ x 5′ floor space. It is powered by a radial pump with servo-motor control delivering 36 g.p.m. at 200 lbs./sq. in. and 5.5 g.p.m. at 2650 lbs./sq. in. and driven by a 7½ h.p. motor.



NATIONAL

NATIONAL TWIST DRILL & TOOL DETROIT U.S.A.

TWIST DRILLS
REAMERS, HOBS
MILLING CUTTERS
COUNTERBORES
SPECIAL TOOLS

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When writing National Twist Drill and Tool Company please mention Purchasing



Your investment in approved equipment to protect your workers on-the-job is a sound one—important as any in your entire operations, *and as deserving of careful maintenance.* Regular inspection and adjustment gets the most out of your equipment in safe performance and extended service-life, and is an important contribution to the conservation program.

LET YOUR M·S·A MAN ASSIST YOU REGULARLY WITHOUT OBLIGATION

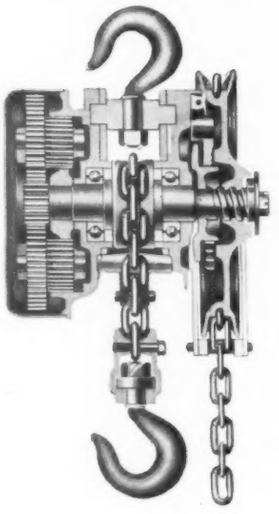


Call in your M.S.A. Representative. Without obligation, he'll be glad to give you the benefit of his professional skill and experience in reviewing your equipment regularly—making adjustments as needed, and advising you as to condition. Let M.S.A. cooperate with you in keeping your tools of safety in top condition at all times!

- ✓ GAS MASKS
- ✓ RESPIRATORS
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- ✓ GAS DETECTORS
- ✓ PROTECTIVE HATS
- ✓ ALL-VISION FACEPIECE
- ✓ GOGGLES
- ✓ OXYGEN BREATHING APPARATUS
- ✓ ABRASIVE MASKS
- ✓ INHALATORS
- ✓ FIRST AID EQUIPMENT

MINE SAFETY APPLIANCES COMPANY
BRADDOCK, THOMAS AND MEADE STREETS · PITTSBURGH, PA.
District Representatives in Principal Cities

IMPROVED CHAIN HOIST



■ An improved, standard type, spur geared chain hoist is now being manufactured by Coffing Hoist Company of Danville, Illinois. It is recommended for many applications in practically all lines of industry where a maximum amount of speed, safety, durability and efficiency is essential.

This hoist is equipped with a dust guard to protect the Weston type brake from dust and dirt. Heavy suspension plates provide unbreakable support between top hook cross-head and load sheave. These plates also directly support the saddle for double-chain hookup, an entirely new feature in this type hoist, and eliminates the use of a top yoke thus reducing weight and headroom and permitting hoist to hang evenly at all times. The load sheave is mounted on two heavy precision ball bearings, enclosed and protected from dust and grit. This new model embodies many other outstanding features and is built in six capacities, ½, 1, 1½, 2, 3 and 4 tons.

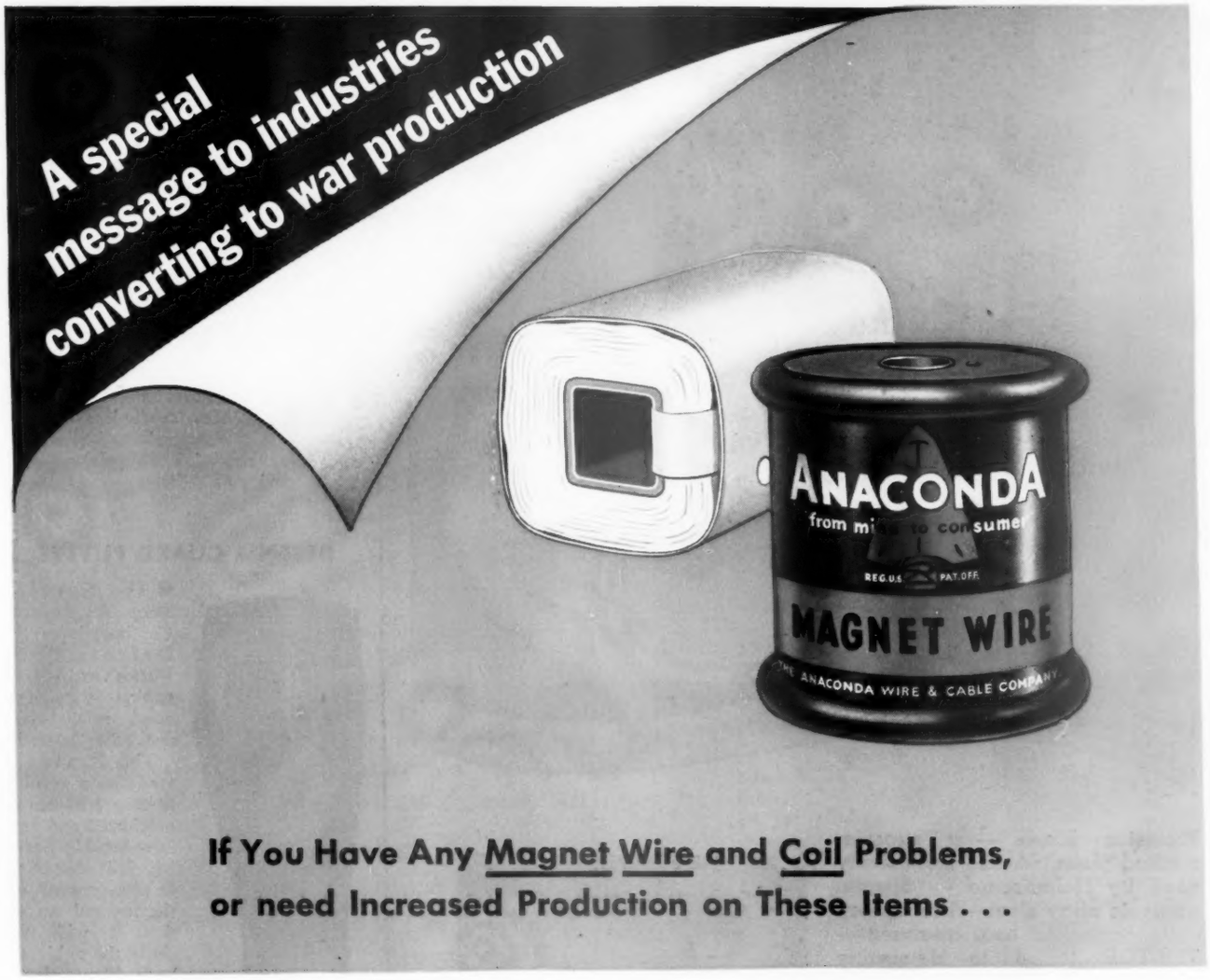
The manufacturer states that all capacities are factory tested at 100 per cent over their rated capacity and are guaranteed against defective material and workmanship.

MECHANICAL DRAFTING PENCIL

■ A new mechanical drafting pencil with a motor-driven lead pointing machine, for engineers, architects and mechanical draftsmen, is announced by the TEC Pencil Company, Beverly Hills, California.

The pencil has a full length lead tube of spring brass—an exclusive feature. This lead tube is driven downward into the chuck point by a screw operated mechanism providing a positive grip on the lead and preventing any slippage or wobble.

It is claimed that the flexible "squeeze action" of the new mechanism does not mar or ring the leads causing them to break. The pencil barrel is made of lightweight Tenite. It is perfectly bal-



Anaconda Can Help!...

Anaconda's Central West plants still have unfilled capacity on magnet wire and coil production . . . *for war work.* In addition to these facilities, they have experienced personnel to help solve problems you might have with this phase of manufacture.

Here is an opportunity to release your time so that it can be devoted to other important problems. Our sales offices, located in all principal cities, are near you. Call today. A representative will be glad to discuss your problem.

GENERAL OFFICES: 25 Broadway, New York City
CHICAGO OFFICE: 20 North Wacker Drive
Subsidiary of Anaconda Copper Mining Company
Sales Offices in Principal Cities

ANACONDA
from mine to consumer
This familiar trade-mark symbolizes the best efforts of modern research and production.

These Improved Insulations Are Now Available
Nylon—Vitrotex—and Formvar

The commercial development of Nylon and Vitrotex insulations is in part the result of Anaconda research . . . research that continues with redoubled effort producing new products for war work. Of course, when peace comes, the benefits of this research will be ready for industry everywhere.

42262



magnet wire and coils

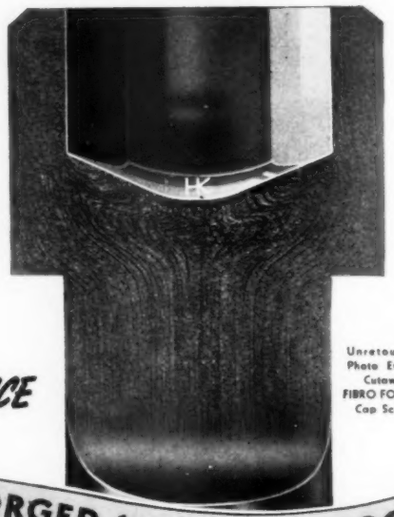
ANACONDA WIRE & CABLE COMPANY

When writing Anaconda Wire & Cable Company please mention Purchasing



Precision Made — a superior method patented and exclusively used by Holo-Krome — Special analysis alloy steel—Atmospherically controlled heat treatment—TEN-TOR tested to determine maximum physical properties—Absolute concentricity of head with body—Threads to a guaranteed Class 3 fit—Specify Holo-Krome.

Catalog and Socket Screw Standards available.



GUARANTEED Unfailing PERFORMANCE

COMPLETELY COLD FORGED from SOLID STOCK

HOLO-KROME
fibro forged
SOCKET SCREWS

THE HOLO-KROME SCREW CORP., HARTFORD, CONN., U.S.A.

anced and has the "feel" of a full length wood-encased pencil. The clumsy metal tip, so objectionable in European made drafting pencils, has been eliminated. This pencil is also made in the double-end type enabling the draftsman to carry two different degrees of lead in one holder, or a lead in one end and a scriber in the other end.

For these pencils, the TEC Pencil Company has provided a new line of high grade drawing leads which are to be had in nine degrees of hardness. These leads are made especially for mechanical drafting pencils and are put through a compression process which gives them greatly added strength and point durability. A motor-driven lead pointer, which starts and stops automatically, provides needle-like drafting points in a few seconds and eliminates the mussy operation of pointing with file or sand pad.

DEFENSE GUARD PUTTEE



■ The Service Boot & Legging Co. introduces the Defense Guard Puttee for leg protection against wind, rain, briars and other hazards.

This Puttee is made on a revolutionary pattern, originated and first introduced by Service. It is shaped to fit the contour of the leg and cut so that it will not chafe the ankle or heel. Many plants specify this Puttee for their guards.

Some outstanding features are: hand blocked, high cuff and wide stay reinforcement, stitched straps and buckles. This is available in black or mahogany in sizes 13 to 17 including half sizes.

PROTECTIVE COATING

■ The Carbozite Corporation of Pittsburgh is stressing at this time a special corrosion-resistant coating for the lasting protection of steel, wood or concrete, which is readily obtainable because it consists of non-essential material which requires no priority or preference rating to purchase. This coating is manufactured from a pyrobitumen ore which is not used in any munition or war material and consequently is freely available when supplied in returnable containers.

The uses of this product are widely varied inasmuch as Carbozite can be either sprayed or brushed on, or dipped (in the case of product finishing) and dries naturally in from 6 to 8 hours or can be baked dry to a glass-like, enamel-type finish in as little as a few minutes. A special coat has also been developed which dries naturally in from 20 to 30 minutes and still maintains its flexibility.

To Conserve ALLOYS

Use STRESSPROOF

T. M. REG. U. S. PAT. OFFICE

COLD FINISHED CARBON STEEL BARS

WHEREVER you are now using an alloy steel, consider STRESSPROOF! This La Salle .40 carbon intermediate manganese steel has replaced a variety of alloy steels of comparable physical properties in many industries.

PROPERTIES

Strength: **Minimum yield point—100,000 psi in sizes up to 2"; 90,000 psi in sizes over 2" through 3¼".**

Machinability: **80% of Bessemer 1112.**

Wearability: **Good.**

Warpage: **Minimum.**

All companies faced with a shortage of alloy steels are urged to investigate this unusual LA SALLE product. Write direct to La Salle, ask your La Salle representative, or contact your nearest jobber. Sizes: Rounds, ⅜"-3¼"; Squares and Hexagons, ⅜"-2"; Flats in limited range.

INDUSTRIES NOW USING STRESSPROOF

Machine Tools	Conveying Machinery
Small Tools	Oil Well Equipment
Cranes	Boring Mills
Electric Motors	Lathes
Governors	Grinders
Trucks and Trailers	Milling Machines
Diesel and Gasoline Engines	Drill Presses
Road Machinery	Centrifugal Pumps
Elevators	Railroad Scooter Cars
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Agriculture Implements	Clutches
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La Salle STEEL COMPANY
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Manufacturer of the Most Complete Line of Cold Finished Steel Bars in America

Send for Engineering Data Book

Eight page descriptive booklet giving all details, many applications and all engineering data is available upon request. Send for it today!

Manganese Steel is Conserving Metal for Many Industries— and the Nation . . .

Industries employing equipment whose parts are subjected to heavy impact and abrasion are contributing to the proper employment of all steel by using genuine manganese steel, "the toughest steel known," in applications where its great economy has been proved. Castings of this wear-resistant metal *seldom give less* than twice the service life of ordinary rolled or cast steel and often outlast them ten to one in the most abusive services.

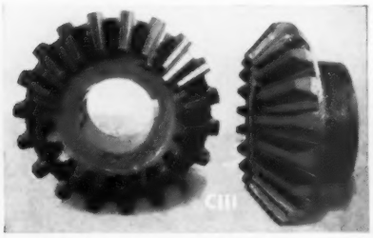
Continuous operation of equipment is an important consideration, also, in addition to savings in man-hours and metals through minimized maintenance and replacements.

Manganese Steel castings are strong and ductile throughout, but under repeated impact or heavy pressure they work-harden on the surface in use. Thus a hard, abrasion-resistant surface is presented with a tough backing which absorbs impact, withstanding stresses under which "hard through" steels would fracture.

Several examples of the remarkable performance of genuine 13% manganese steel equipment parts are exhibited here. This steel is not recommended for structural, load carrying, or other everyday applications where ordinary steels are adequate, but where impact and abrasion are severe no steel as suitable and economical as manganese steel has yet been found.



R-721—A sawmill superintendent states: "Manganese steel log haul chain of pinlock design, that we are using, has lasted 9 times longer than the heat-treated steel roller type chain it replaced."



C-111—"27 years' service on our roll table line shaft," reports the master mechanic of a blooming mill, "And they're still running," praising Amsco manganese steel gears like these pictured.



R-342—A car builder recently reordered these manganese steel crane wheels to replace identical wheels that had been in service 21 years in their foundry.

Amsco
AMERICAN MANGANESE STEEL DIVISION
OF THE AMERICAN BRAKE SHOE & FOUNDRY CO.
Chicago Heights, Illinois

Manganese Steel Castings for shocks and abrasion.
Chromium-Nickel Alloy Castings for heat and corrosion resistance.
Power Shovel Dippers. Dredge and Industrial Pumps.
Welding Materials for reclamation and hard-surfacing.

FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO. OFFICES IN PRINCIPAL CITIES

It is widely used for coating export products as protection against sea water and air. The coating forms a uniform, self-leveling film which will bond securely to any clean material and provides complete protection against corrosion from acid or alkali fumes, sulphur or salt air or water, smoke or soot and is totally unaffected by moisture, sunlight or any corrosive or carbonizing agent encountered in industrial usage.

This coating retains its ductile, flexible nature at all temperatures ranging from 40° F. to 450° F. Consequently it does not crack, chip, peel or sag and gives perfect protection throughout the expansion and contraction of this wide temperature change.

It is manufactured in black and red oxide and a special non-corrosive coating in light grey or dark grey is also available. Aluminum and Copper colors, which were previously available, have been discontinued due to the essential nature of these metals to the War Program. Also of special interest to maintenance men and executives responsible for plant protection is Carbozite's new Blackout Black Coating developed specifically for blacking out windows and skylights and removable either with petroleum solvents or easily scraped clean without solvents.

HYDRAULIC PRESS



■ A new, highly versatile oil hydraulic press offerd in capacities of 50 tons and up, has just been announced by The Denison Engineering Company of Columbus, Ohio. It is adapted to a wide range of straightening, assembling and pressing operations in either small-lot or production work.

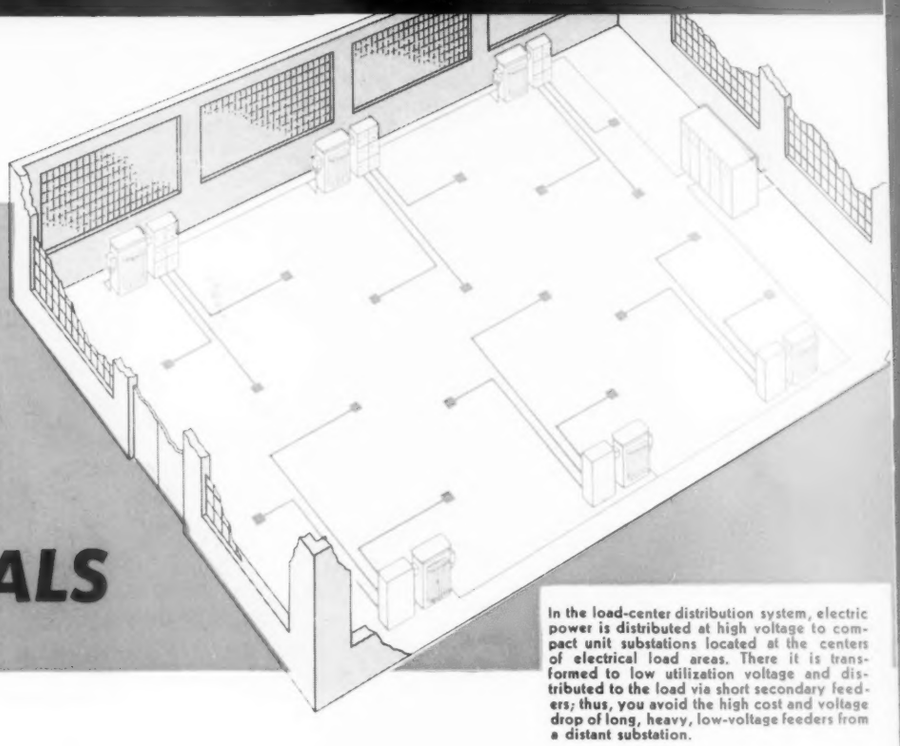
This press is of rubbed construction, self-contained, streamlined, and free of projections, more modern in appearance and safer to operate. The safety factor has also been considered in the location of controls, and the press ram is threaded internally for attaching, assembling, bending or straightening tools.

General arrangement of the press is as follows: the ram and cylinder head assembly is located in the top part of the box frame, the directional control valve and its operating mechanism, the motor, pumps, tonnage controls, and oil reservoir are located in the base of the press.

The press is furnished with hand-lever or electrical controls, located in the

LOAD-CENTER DISTRIBUTION

The NEW *and* BETTER WAY *to distribute* ELECTRIC POWER



SAVES
TIME, MONEY AND VITAL MATERIALS

In the load-center distribution system, electric power is distributed at high voltage to compact unit substations located at the centers of electrical load areas. There it is transformed to low utilization voltage and distributed to the load via short secondary feeders; thus, you avoid the high cost and voltage drop of long, heavy, low-voltage feeders from a distant substation.

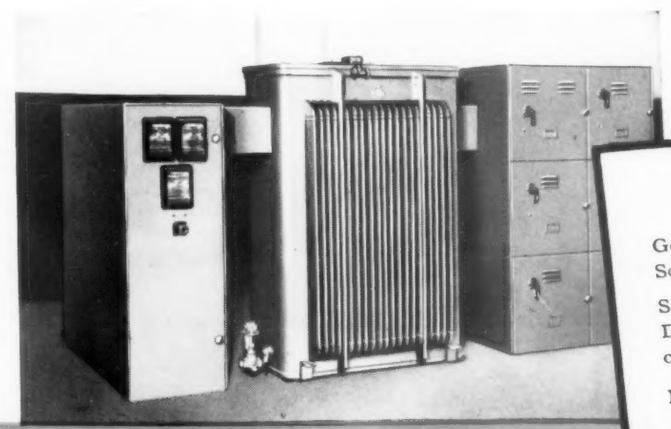
HERE'S the answer to the pressing problem of providing a reliable distribution system, quickly and economically, in today's rapidly expanding plants —the LOAD-CENTER system.

Load-center distribution enables you to install a *better* distribution system in several weeks' less time, at lower over-all cost, and with far less copper and other vital materials than are required for an old-style system. Furthermore, the flexibility of your electric system is increased, engineering and planning time is reduced, and purchasing is considerably simplified.

Basic element of the system is the "packaged" load-center unit substation—a compact, factory-built, entirely co-ordinated unit that's delivered ready to install right in the same room with the machinery to be supplied with power. Thus, you can add substation capacity WHEN you want it and WHERE you need it, largely eliminating the high cost of long, heavy low-voltage circuits from a distant substation. Voltage drop, too, is greatly reduced, thus improving the performance of your electric equipment.

LOAD-CENTER DISTRIBUTION IS FLEXIBLE
Four basic circuit arrangements offer various degrees of service reliability with corresponding variations in first cost.

Load-center unit substations, basic element of the G-E load-center distribution system, are quickly and easily installed (either indoors or outdoors) at comparatively low cost. And they're entirely metal-enclosed for increased safety.



General Electric and its employees are proud of the Navy award of Excellence made to its Erie Works for the manufacture of naval ordnance

FOR THE ENTIRE STORY

General Electric Co., Sect. A302-3
Schenectady, N. Y.

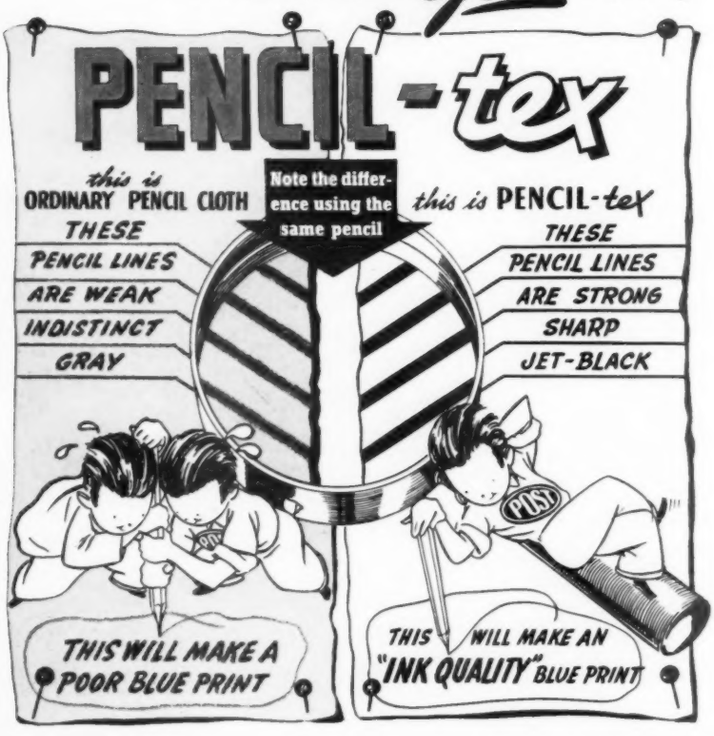
Send me your bulletin (GEA-3758), "Load-center Power Distribution," which describes in detail how the load-center system saves time, money, and vital materials.

Name .....
Company .....
Address .....
City ..... State .....

302-3-5900

GENERAL ELECTRIC

HERE'S A PENCIL CLOTH THAT'S Got It!



INK-LIKE RESULTS AT PENCIL SPEED

● Every line of your favorite hard pencil on Post's sensational tracing cloth, PENCIL-*tex,* will blue-print with the sharp definition of India ink. The use of pencil, which draws jet-black on the processed velvety surface of PENCIL-*tex,* and the glass-like transparency of the tough, durable cloth, will save hours of time and, in consequence, your blue prints will be ready much earlier. PENCIL-*tex* is subject to quick, easy erasures and is made in sizes to fit your needs. Once you have used PENCIL-*tex* you will realize its tremendous value in these days of more work in less time.

• • •

GET YOUR FREE TRIAL NOW

At our expense, prove to yourself the superiority of PENCIL-*tex*. Free trial samples—actual work size sheets—are yours for the asking. Your local Post dealer will be glad to supply work sheets in your size. 'Phone him for your free trial supply, or send direct to The Frederick Post Company, Box 803, Chicago, Illinois.

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INSTRUMENTS • EQUIPMENT • BLUE PRINT PAPERS

• KINDRED SENSITIZED PRODUCTS •

POST

base of the press, and the control is arranged so that tonnage applied to the work is controlled, within reasonable limits, by the operator in accordance with the requirements of the operation.

To operate, the control lever is pushed down. This causes the ram to move downward at rapid-traverse speed until it contacts the work, exerting a minimum of tonnage. To increase the tonnage applied to the work, the control lever is moved further downward by the operator. When the control lever is released, the ram moves upward until the upper "stroke stop" on the shipper rod is reached, moving the control valve to the neutral position. The pump and motor then run idle, consuming a minimum of h.p., and the ram is held in place HydrOILically.

For electrical control, the press is equipped with two operating push-buttons, requiring hand tie-up, as the press will not operate if only one button is pushed. The press will continue to exert pressure until the push-buttons are released when the ram will return to its normal position.

HYDRAULIC TRUCK

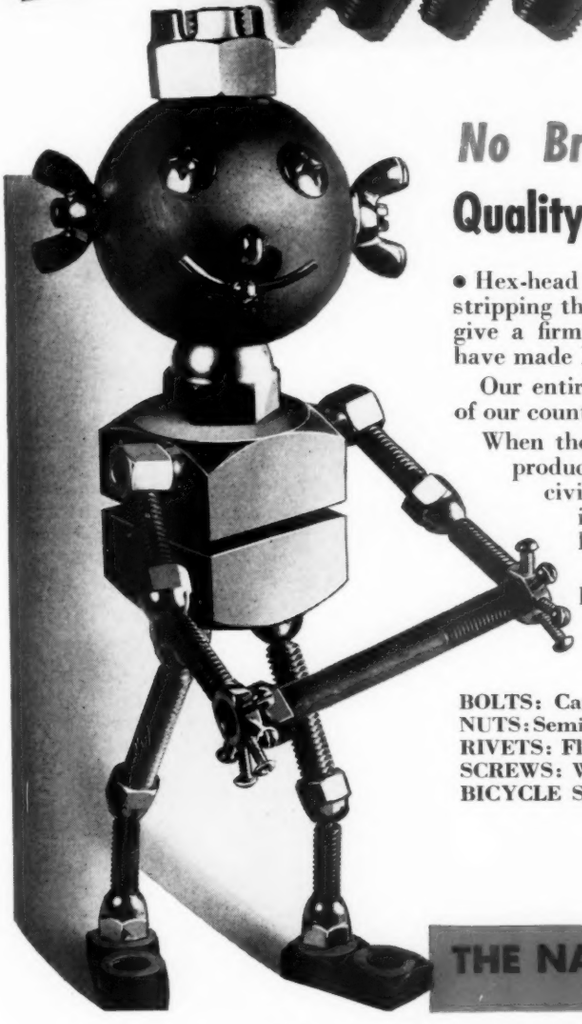


■ The Lyon - Raymond Corporation, Greene, New York, have introduced a heavy capacity hand operated Hydraulic Truck for handling long strips of sheet metal.

This truck is designed to keep sheet metal at a convenient height for the operator while he is feeding the sheets to a punch press. It has a maximum capacity of 10,000 lbs. with a two-speed hand operated hydraulic pump. It is also equipped with an attachment so that a towing hitch may be mounted on the front wheels so that the truck may be conveniently moved with the aid of an industrial power tractor. By using this truck one operator is required, whereas in many cases without the aid of this truck two or more were required.

This truck is also equipped with a brake, i.e., floor lock, so that the truck may be locked in position when the operator is feeding the sheets into the punch press. The truck shown in the illustration is of the toggle lever type, 10,000 lb. capacity, has a table 36″ wide x 120″ long, lowered height 18″, elevated height 36″, elevation 18″, fifth wheel steer, with two speed hydraulic hand pump, front fork arranged for installation of towing hitch. This truck can, however, be furnished of other capacities and specifications and also with a motor driven pump instead of the two-speed hydraulic hand pump.





No Breakage Problem with *National's* Quality Line of HEX-HEAD CAP SCREWS

• Hex-head cap screws that take heavy wrenching without breakage or stripping threads . . . Hex-head cap screws with sharp, strong threads that give a firm grip . . . qualities which earned leadership in normal times, have made National cap screws preferred for war products.

Our entire production capacity today is devoted to answering the call of our country's war industries.

When the day returns again—and may it be soon—when we shall be producing screws, bolts, nuts, rivets and other products for normal civilian and industrial uses, the added experience gained in meeting exacting Army and Navy specifications will result in tougher, better products for you.

Better production of a better product is our slogan today to keep our boys rolling, sailing and flying against the enemy.

Isn't this the way *you* want us to operate?

★ ★ ★

BOLTS: Carriage, Machine, Lag, North, Plow, Elevator, Step, Stove, Tire.
NUTS: Semifinished, Slotted Castle, Cold Punched, Hot Pressed, Machine Screw.
RIVETS: Flat, Oval, Wagon, Box, Truss Head, Countersunk.
SCREWS: Wood, Machine, Cap, Sheet Metal, Phillips Recessed Head.
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THE NATIONAL SCREW & MFG. COMPANY
CLEVELAND, OHIO

When writing The National Screw & Mfg. Company please mention Purchasing

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RELAYS by Guardian

This "G" in the shield . . . high in the air—scouring the sea—sweeping the land . . . in jeeps—guns—tanks—planes—ships—is doing a 100% "all out" job for America!

Strictly defense, production time open for government approved items, with samples immediately available for any job for the U. S. Army, Army Air Corps, Navy, Naval Air Corps, Marine Corps, Signal Corps, Ordnance.

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P. S. Want to take advantage of some of our recent developments for that "after it's over" product you have in mind? Samples only available now!

Design now with defense needs and future production in mind. Let Controls by Guardian help cut costs . . . sustain increased capacity . . . meet competition and return more profits in strongly competitive future peacetime markets.

GUARDIAN ELECTRIC

1635 WEST WALNUT STREET CHICAGO, ILLINOIS

LARGEST LINE OF RELAYS SERVING AMERICAN DEFENSE INDUSTRY

SLOTTING HEAD



■ Experimental Tool & Die Company had to cut an internal gear in the bottom of a cavity in a block of steel. After the preliminary machining operations had been performed, the block was chucked on a dividing head mounted on the table of a milling machine upon which a "Slotmaster" was installed.

This detachable slotting head can be attached in a few minutes to round overarm and other milling machines and makes practical its use as a vertical slotter and shaper. A special form tool and tool holder was inserted in the clapper-box of the "Slotmaster" which can be turned in any position desired. With this set-up the job was done quickly, cleanly and accurately eliminating several costly hobbing and hand operations.

RUBBER SAFETY EQUIPMENT

■ Munition plant safety equipment designed to help eliminate explosions through the use of a unique type of electricity-carrying rubber was announced today by United States Rubber Company.

In the last War, workers in powder and shell factories often went barefoot to prevent blasts from body sparks. This is the same type of electricity which is discharged from your fingertips when you cross a thick-pile rug and touch a metal doorknob.

To remove this danger, the new rubber known as "conductive" was developed to carry a charge of electricity, at the same time keeping other rubber characteristics. When powder plant workers' shoes have soles and heels of the new substance, the body electricity is dispersed through the feet into the flooring which may be made of the same material to carry off the charge.

Containers for the powder, table tops and any other spot where electricity might collect, likewise make use of the material. Belting made of conductive rubber carries off the static electricity which collects from its motion. The material is particularly valuable for use in hose which may be charged with electricity, generated by the friction of particles passing through it.

Conductive rubber is made by the addition of special compounds. Since these constitute good reinforcing agents, the quality of the rubber is thereby increased. In quantity production, cost of the new rubber will vary according to use. In general, it now runs about ten per cent above ordinary rubber.

When writing Guardian Electric please mention Purchasing

MECHANICAL RUBBER

In Essential Industries



COAL . . . fuel for the blazing fires of industry at war, raw material for many essential processes . . . is one of the rich basic resources lending dominant advantage to America's war effort. And this well-known importance of coal today is, at the same time, a striking example of the importance of Mechanical Rubber Products to the war production program—for rubber belting and hose of various types are integral parts of modern mining and handling methods. Such is the position of Mechanical Rubber *throughout* industry—as coal is mined and put to use in greater quantities, faster and more efficiently with rubber, so are ships built, metals produced, tanks made, oil wells drilled and railroads operated . . . better with mechanical rubber equipment.

Republic, with over forty years of specialized experience in the exclusive manufacture of rubber products for industrial use, is extending every effort to meet the needs of essential industries today. . . REPUBLIC RUBBER DIVISION OF LEE RUBBER AND TIRE CORPORATION, YOUNGSTOWN, OHIO.

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The previously growing tendency of industry to rely on the Mill Supply House as the best answer to its needs for new and replacement equipment has soared abruptly under the present emergency conditions. Your Republic Distributor is a leading representative of this field which is serving so commendably today. The Republic Distributor Emblem which he displays is a mark of Republic's well-founded approval and your assurance of his qualifications.



REPUBLIC RUBBER

Republic Rubber Youngstown Ohio

HOSE • BELTING • MOLDED GOODS
PACKING • EXTRUDED PRODUCTS



The winch on the front of the tractor carries the emergency lifeline for both tractor and field piece. In the army, as in the navy and in industry, men depend on American Cable

TRU·LAY Preformed WIRE ROPE

to lift...to haul...to hold

For example:—United States Army tractors can haul tremendous loads through deep mud and sand. But when they sometimes encounter conditions where there is no traction, the winch comes into play. With a tractor firmly anchored by its Tru-Lay rope, it winches out under its own power.

Tru-Lay Preformed Wire Rope's excellent work for the army is no surprise to industrialists. They discovered years ago that long-lasting Tru-Lay saves money and time. Fewer and shorter shutdowns for replacements save additional time. Being easier, faster and safer to handle, Tru-Lay makes man and machine hours more productive. Its longer life saves steel for other vitally necessary purposes.

Tru-Lay Preformed Wire Rope is one of 137 essential products we make for Industry, Agriculture and Transportation.

AMERICAN CHAIN & CABLE
COMPANY, INC. • BRIDGEPORT, CONNECTICUT
In Canada—Dominion Chain Company, Ltd. • In England—The Parsons Chain Company, Ltd., and British Wire Products, Ltd.
American Chain, American Cable Wire Rope and Aircraft Controls, Campbell Cutting Machines, Ford Chain Blocks, Hazard Wire Rope, Manley Garage Equipment, Owen Springs, Page Fence and Welding Wire, Reading Castings, Reading-Pratt & Cady Valves, Wright Hoists and Cranes

HAND LIFT TRUCK



■ Yale & Towne Manufacturing Company have just delivered to Johns-Manville & Sons the world's longest Hand Lift Truck.

This truck is 168" long and is a special adaptation of the standard Yale Load King Hydraulic Lift Truck. It was specially designed to cope with problems arising in the handling of wall board and roofing.

TRANSIT CRANES

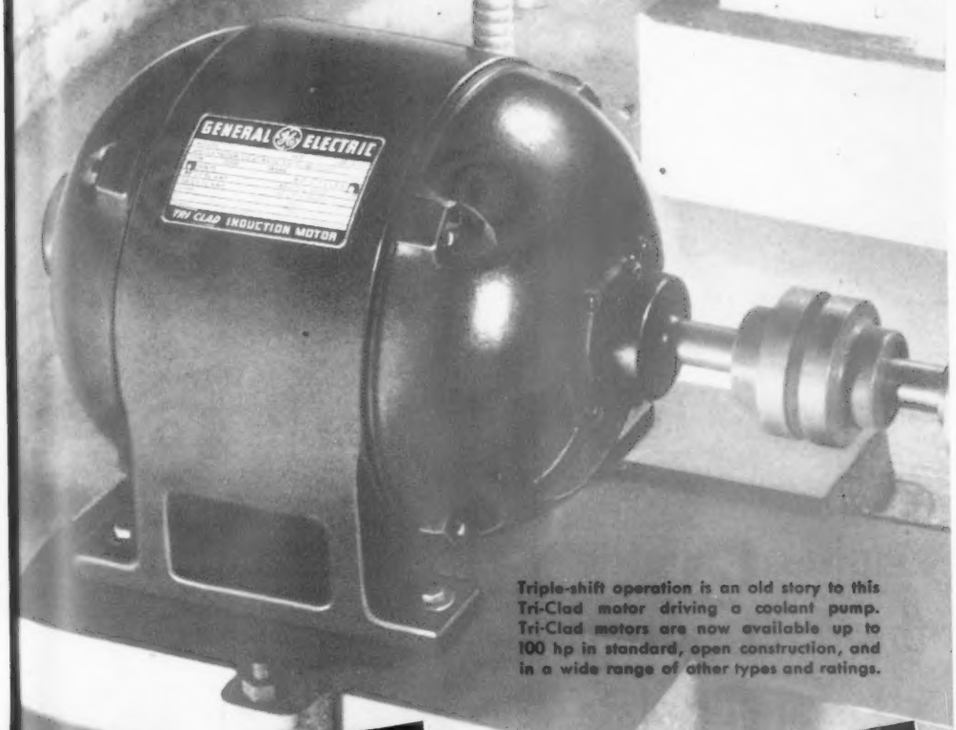
■ Featuring unusual flexibility to meet an extremely wide range of job requirements and conditions, the Bucyrus-Erie transit cranes just announced are not only fully convertible from crane to clamshell, dragline, shovel and dragshovel service, but are also designed for quick conversion from the wheel mounting to standard crawler mounting for occasional jobs inaccessible to wheel-mounted units.

Speed and mobility to shorten nonproductive traveling time and step up output is provided by the rugged, specially designed ten-wheeled mounting. Smaller of the two Bucyrus-Erie transit cranes is the 15-B, with a 10-ton maximum crane rating and convertible to ½-yard excavator. The second unit is the 22-B which has a maximum crane rating of 20 tons and is convertible to a ¾-yard clamshell, dragline, shovel or dragshovel.

Designed and built exclusively for crane-excavator service, the Bucyrus-Erie wheel mounting provides an all-welded base giving maximum strength per pound of weight. Tandem rear axles mounted on an equalizer beam assure full traction over rough grounds. Dual worm drive applies power smoothly, the rugged transmission provides 10 forward and 2 reverse speeds. Use of two identical engines, one for propelling, the other for handling hoist, swing, etc., simplifies maintenance and repair. Maximum speed on level ground is 27.5 m.p.h. for the 15-B and 31 m.p.h. for the 22-B.

Full-vision mounting cabs are furnished with comfortable leather bus-type seats, and include convenient controls and instruments. The 15-B is equipped with vacuum booster-set air brakes on all four rear wheels and the 22-B carries Westinghouse internal air brakes on the rear wheels. Service brakes on both models can be locked in engaged position; an additional cable-operated mechanical parking brake system is standard on both units.

MORE "STAYING POWER" ON PUMPING JOBS



Triple-shift operation is an old story to this Tri-Clad motor driving a coolant pump. Tri-Clad motors are now available up to 100 hp in standard, open construction, and in a wide range of other types and ratings.



Protected. Dirt and dripping liquids are ever-present enemies of motor operation in locations like this. But the smoothly contoured, cast iron frame of this Tri-Clad motor guards it against damage.

Long Lasting. This Tri-Clad motor is an excellent running mate for the chlorinating pump it drives. Its extra-protection features—cast iron frame, windings of Formex wire, improved bearings—are assurance of long life on important jobs.

The extra protection of TRI/CLAD MOTORS helps keep pumps delivering

NOW—before you buy motors—is the time to solve your pump-motor problems. Wherever continuous pumping is essential to your production—wherever pumps must operate under adverse conditions—your motors must be secure against 1) physical damage, 2) electrical breakdown, 3) operating wear and tear.

Here's where the *extra*-protection features of Tri-Clad motors will help you get the triple-shift operation you need. Their cast-iron frames and end shields exclude falling objects and dripping liquids; their windings, of Formex wire, are resistant to oil, moisture, and heat shock; their improved bearings, completely sealed in cast iron, are protected against the entry of dust and dirt. All these features add up to *extra staying power* on jobs where 24-hour production is essential.

How to Get Motors Quicker

USE STANDARD MOTORS. Wherever possible, select standard, open, sleeve-bearing motors. Building fewer "specials" means faster and greater production of motors for war work.

PLACE ORDERS EARLY. Order the motors when you order, or plan for, the equipment they are to drive.

SEND PROPER PRIORITY. Be sure correct priority papers accompany your order and that the priority rating reflects the urgency of the motor's use in the war.

CHECK G.E. for warehouse stocks. A supply of many standard motors are kept on hand to meet urgent war needs. Perhaps the motor you want, or can use with a few simple changes, is available for immediate shipment.

General Electric, Schenectady, N. Y.

General Electric and its employees are proud of the Navy award of Excellence made to its Erie Works for the manufacture of naval ordnance.

BUILT FOR PROTECTION FIRST..TO LAST

GENERAL ELECTRIC

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THEIR HIDES ARE GETTING TOUGHER and TOUGHER..



...placing added emphasis on the importance of using the right cutting and drawing lubricants for armor plate

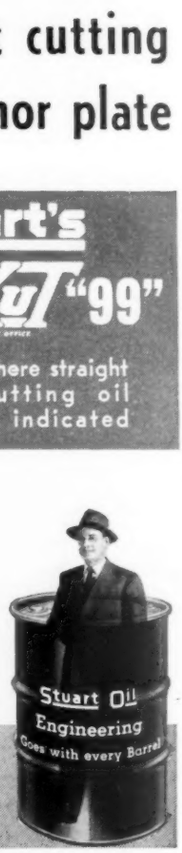
• These time-tested Stuart Oil Products are in wide use at principal tank building plants. Detailed application information is yours for the asking.

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Stuart's Thred Kut "99" where straight cutting oil is indicated

Stuart's SOLVOL LIQUID CUTTING COMPOUND for carbide tools and where an "aquamix" solution is recommended

Stuart's "SUPER-KOOL" for deep drawing, stamping, etc.



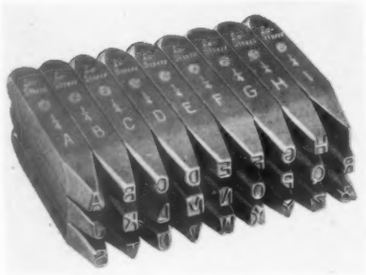
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STEEL STAMPS



These round face characters are designed for marking parts placed in torsional or tensile stress. Also, where internal stresses of heat-treated steel may break out at point of marking on surface. The rounded impression and special character design of these steel stamps provide the minimum stress set up by permanent marking.

The new character has been carefully engineered and designed by Jas. H. Matthews & Co., of Pittsburgh, Pa., for safe marking of aircraft, tubular or heat-treated parts, and is available in letter and figure stamps, hand stamps, stamping and roller dies, and in steel type for use in type holders.

SANDBLAST HOSE

■ Again putting to practical use its comparatively recent research on electrically conductive rubber and synthetic rubber compounds, The B. F. Goodrich Company, Akron, Ohio, announces a sandblast hose employing these principles.

Because of its success in this service the company's previous anti-static sandblast hose which used an internal wire construction for dissipating static charges has been discontinued.

There is no wire used in the new sandblast hose. The rubber compound used carries away the static electricity as fast as it forms.

Laboratory tests made on conventional sandblast hose of excellent make and quality showed that the rubber compounds used in them had a resistance exceeding one quadrillion ohms per centimeter cube, while the resistance of the compound used in this hose is only 3000 ohms per centimeter tube. For the high voltages of static electricity the compound is practically as good a conductor as metal.

Following laboratory tests on the new hose several thousand feet were placed on test carrying high velocity sand on a large construction job in the far west, where the ordinary highest quality sandblast hose was not able to carry away the electricity and the hose could not be handled by the operator. The new hose performed its task so well under difficult conditions that thousands of feet of it were ordered. It not only carries away the high static charges, but is proving abrasion resistant to the sharp sand particles.

The new hose is made in four ply construction, with ¼ inch tube, in sizes ranging from ¾ inch to three inches.

Have you tried Scully?



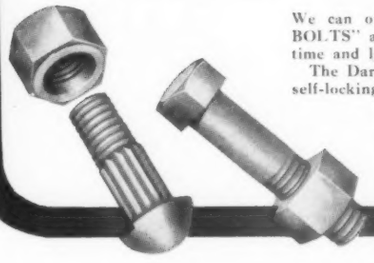
WE are not magicians, but we will do everything within our power to help you get the materials you need. We have stocks of many steels on hand, also tools, machinery and other equipment.

Be sure to try Scully — see our phone numbers below. Cut out the number of the warehouse nearest you and paste it in a handy spot.

Structural material
Plates, various qualities
Floor Plates
Sheets: Hot Rolled, Cold Rolled, Galvanized, etc.
Bars (all shapes): Hot Rolled Carbon and Alloy grades
Hot Rolled Strip Steel
Spring Steel · Tool Steel
Drill Rod
Cold Finished Bars, Carbon and Alloy grades
Wire
COR-TEN and MAN-TEN Shapes, Sheets and Plates
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Eaves Trough, Conductor Pipe
U·S·S Stainless Steel and Stainless products
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Rivets, Bolts, Nuts, Washers
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Nails
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Expanders, etc.
Hoists, Shears, Rolls, Punches, Cut-Off Machines, Saws, Nibblers, etc.

CHICAGO	**BRUnswick 2000**
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IN STOCK! DARDELET "RIVET-BOLTS"



We can offer immediate shipment of both Dardelet "RIVET-BOLTS" and Dardelet Machine Bolts. These bolts save valuable time and labor and assure permanently tight joints.

The Dardelet "RIVET-BOLT" is a ribbed bolt with Dardelet self-locking thread, and is widely used for field erection of structural steel. Has recessed nut. Bolt is driven in and nut is applied with wrench. Economical and strong.

The Machine Bolt with Dardelet self-locking thread is for general use where vibration is present.

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UNITED STATES STEEL



Oil Dermatitis must not sabotage machine shop production now!

You want your men to check in with healthy WORK-READY hands —for even a mild infection lowers a man's efficiency, and even minor discomfort may take his mind off his work at a critical moment.

Cutting oil — neglected — can be a constant spreader of dermatitis. DISINFECTION of the cooling compound is an obvious necessity.

This Company's WESCOL* in as slight a quantity as 1½ pints to 50 gallons of cutting-coolant compound should effectively stop the spread of infection, by killing harmful pathogenic bacteria. In comparison with the loss of man-hours and work-efficiency the cost of Wescol is slight, indeed—not to mention the saving in compensation claims.

Wescol is a special-purpose product of notably successful performance which should be known to every Machine Shop in the land.

★ **For protection against skin-irritants of other kinds, investigate West Protective Hand Creams.**

★ **For basic skin-health we recommend you use Lan-O-Kleen* hand soap—containing emollient lanolin. Sample on request.**

*Trade Mark Reg. U. S. Pat. Off.

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SERVING AMERICAN INDUSTRY FOR OVER 50 YEARS

55 BRANCHES Coast-to-Coast and in Canada

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Please send me your latest bulletin on
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W-35

TAP RECONDITIONER



■ Designed to alleviate current difficulties in securing the vast numbers of precision ground taps required for war production needs, a Tap Reconditioner is announced by Detroit Tap and Tool Company, Detroit, Mich. Combining in one unit facilities for chamfering, for spiral pointing and for point polishing, the Tap Reconditioner serves to eliminate delays in tap replacements by simplifying reconditioning of taps.

The tap chamfering unit, located at the left of the machine is of the precision collet type, assuring maximum locating accuracy with quick changes. It will accommodate collets from the smallest machine screw size up to the 1¼ in. standard tap shank size.

Taps of from 2 to 7 flutes may be handled through the provision of an indexing drum, indexing being accomplished by pulling the dual purpose control lever sideways to release the spring plunger. Proper index for different numbers of flutes is selected by moving the drum assembly in or out until the number corresponding to the number of flutes appears in an inspection aperture. Graduations are provided for adjustment to desired chamfering angle.

Safety stop pins limit the movement of the chamfering unit for taps of different numbers of flutes. A manual type diamond dresser is provided for the chamfering wheel. Hand-wheel adjustment for wear of wheels is provided by mounting the entire grinder assembly on sturdy ground rails.

The oversize grinder motor is of the double-end shaft type, is of dust-proof construction and mounted on ball bearings. The spiral pointing unit to the right employs a saucer type wheel, and its fixture is designed to accommodate taps from the smallest machine screw to ½ inch diameter, using the same precision chuck.

Any desired angle of spiral point may be ground by setting the unit according to graduations on the support housing. Taps of 2, 3 or 4 flutes may be spiral pointed. To index the tap, a trigger is pulled back and the fixture rotates to the next flute position of the interchangeable index discs.

Correct depth and hook desired in spiral pointing is obtained by means of simple manual vertical and horizontal feed adjustments. A safety stop to limit angular swing of the unit is provided. A separate polishing unit for spiral

NO WARP IN THE THIN SECTIONS

PEP UP PRODUCTION
AND [illegible] STEP UP VICTORY
Start using Graphitic Steel now—
and increase your war production.
Continue using it after Victory—
and fortify yourself against
post-war competitive
conditions.



TO ASSURE VICTORY
BUY UNITED STATES
DEFENSE BONDS & STAMPS

Mr. E. P. Rupprecht, Superintendent of The Chicago-Wilcox Manufacturing Company, Chicago, Ill., reports "We used to have considerable trouble with warpage in the thin sections of our intricate gasket dies. Graph-Mo steel has solved that problem and made our work a lot easier in other ways, too. Graph-Mo machines much easier than other die steels we've used and wears longer."

This is just one of the hundreds of testimonials pouring in from users of this remarkable new die steel.

Ask for your copy of the Graphitic Defense Handbook. It will answer all your questions about this steel.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO
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TIMKEN
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Manufacturers of Timken Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; Timken Alloy Steels and Carbon and Alloy Seamless Tubing; and Timken Rock Bits.

When writing The Timken Roller Bearing Company please mention Purchasing



"PLANET" BLUE TEMPERED AND POLISHED has solved a lot of spring problems—and may be the answer to yours. It readily meets Government specifications for Cold Rolled High Carbon Flat; tempered, polished and blued. It's made to close tolerances, uniform temper, and exacting specifications.

We carry the largest stock of this type spring steel in the Metropolitan New York area . . . stock sizes from .002 to .078 in thickness, ⅛" to 6" widths. And our equipment includes a modern slitting machine which can give you any width desired.

Whenever you have a spring problem that calls for long experience with spring steels and a wide range of stock items, call Purdy.

A phone call will get you prompt action.

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Our Complete Stocks Include the Following:

ROUND HIGH CARBON

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Hard Drawn and Coppered Drawn Wire
Black Annealed Spring Wire
Oil Tempered Spring Wire

FLAT HIGH CARBON

Blue Tempered and Polished Coils
Cold Rolled Annealed SAE 1095 —Coils and Straight Lengths
Cold Rolled Annealed .70/.80 Carbon — Coils and Straight Lengths
Hot Rolled SAE 1095—Sheets
Hot Rolled SAE 1095—Sheets Annealed
Oil Tempered Flat

BAR STOCK

Hot Rolled SAE 1095—Rounds Flats—Squares
Hot Rolled SAE 9250 — Flats (Silico-Manganese)

A. R. PURDY CO. Inc.
790 Greenwich St., N.Y.C. · Phones Chelsea 3-4455 · Market 3-4075

points, etc., is provided at the top of the machine base, operated by a separate motor and fitted with a cone-shaped wheel. All wiring is internal, terminating in an external fuse and connector box for simple connection to any 110 volt, 50 or 60 cycle convenience outlet. Large storage capacity is provided in the base of the machine for collets, grinding wheels, tools, etc.

CONTROLLED FLOW PUMPS

■ Two new larger capacity Gray Portable Controlled Flow Coolant Pumps for easy attachment to drill presses, lathes, grinders, saws, tappers, milling machines and other cutting tools are announced by the Gary-Mills Co., Inc., Chicago, Ill. Pans and fittings are also announced. According to the manufacturer, immediate acceptance of the original model by the machine tool industry, coupled with the expressed need of machine shop operators for larger pump units to fit every type of machine tool, made necessary the expansion of the line.

The new models have capacities of 75 and 130 gallons per hour with pressures of 20 and 30 lbs. respectively. The features of the new models are like those of the original, namely portability, control of coolant flow from small stream to full flow adjusted by simple wing nut, capacity to withstand continuous operation, ease of replacement of all wearing parts, ability to handle coolants of all but extreme viscosities, easily cleaned strainers, low first cost, and negligible operating cost.

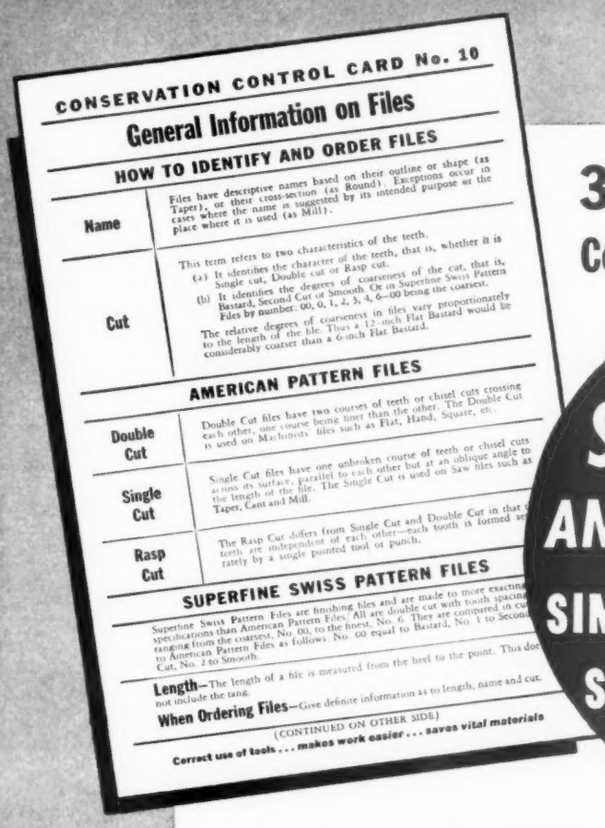
SWITCHBOARD WATTHOUR METER

■ For industrial and central station use, a new line of switchboard watthour meters is announced by Westinghouse Electric and Manufacturing Company.

The units are available for metering all the various combinations of single phase or polyphase power. Mounting styles are flush, projection and a detachable or plug-in construction. The detachable models can be readily removed for overall inspection and test without interrupting the circuit. All the calibration adjustments are accessible from the front when the molded glass covers are removed.

The single phase meters in this line have one electro-magnet and are applicable to single phase circuits. The meters for the usual 3-wire single phase circuits have 3-wire current coils. Other meters have two 2-wire elements and may be used on single or 3-phase, 3-wire circuits, and on 2-phase, 3- or 4-wire circuits. CB-3 meters consist of three 2-wire elements. They are used to meter 3-phase, 4-wire star-connected circuits and, when used with instrument transformers, to totalize combined 3-phase, 3-wire and single phase, 2-wire or 3-wire loads.

Another model of the two disk type and have two 3-wire electromagnets


CONSERVATION CONTROL CARD No. 10

General Information on Files

HOW TO IDENTIFY AND ORDER FILES

Name — Files have descriptive names based on their outline or shape (as Taper), or their cross-section (as Round). Exceptions occur in cases where the name is suggested by its intended purpose or the place where it is used (as Mill).

Cut — This term refers to two characteristics of the teeth.
(a) It identifies the character of the teeth, that is, whether it is Single cut, Double cut or Rasp cut.
(b) It identifies the degrees of coarseness of the cut, that is, Bastard, Second Cut or Smooth. Or in Superfine Swiss Pattern Files by number: 00, 0, 1, 2, 3, 4, 6—00 being the coarser.
The relative degrees of coarseness in files vary proportionately to the length of the file. Thus a 12-inch Flat Bastard would be considerably coarser than a 6-inch Flat Bastard.

AMERICAN PATTERN FILES

Double Cut — Double Cut files have two courses of teeth or chisel cuts crossing each other, one course being finer than the other. The Double Cut is used on Machinists' files such as Flat, Hand, Square, etc.

Single Cut — Single Cut files have one unbroken course of teeth or chisel cuts across its surface, parallel to each other but at an oblique angle to the length of the file. The Single Cut is used on saw files such as Taper, Cant and Mill.

Rasp Cut — The Rasp Cut differs from Single Cut and Double Cut in that [illegible] teeth are independent of each other—each tooth is formed separately by a single pointed tool or punch.

SUPERFINE SWISS PATTERN FILES

Superfine Swiss Pattern Files are finishing files and are made to more exacting specifications than American Pattern Files. All are double cut with tooth spacing ranging from the coarsest, No. 00, to the finest, No. 6. They are compared in cut to American Pattern Files as follows: No. 00 equal to Bastard, No. 1 to Second Cut, No. 2 to Smooth.

Length—The length of a file is measured from the heel to the point. This does not include the tang.

When Ordering Files—Give definite information as to length, name and cut.

(CONTINUED ON OTHER SIDE)

Correct use of tools . . . makes work easier . . . saves vital materials

34 FREE Disston Conservation Control Cards

help SAVE TOOLS AND MATERIALS... SIMPLIFY SUPERVISION SPEED PRODUCTION

The present emergency calls for the utmost in output with the greatest possible saving in tools, time and materials.

The Disston Conservation Control Plan will aid you in war time production effort with Instruction Cards, like the illustration. Each of these 34 cards covers a different type of cutting tool. On the face and reverse of each card is practical, expert information to correct faults in operation, avoid failures and prevent waste. Recommendations are made for the selection, adjustment and repair of tools—to lengthen tool life, improve workmanship and product, and avoid delays.

Many plants are reporting that Disston Conservation Control Cards are proving a valuable means of reducing breakage, increasing efficiency, simplifying supervision, and expanding production.

You can apply these cards in your plant without cost or obligation—whether or not you use Disston products. Order the quantity and type required and they will be sent promptly. Free Conservation Control Plan posters, stickers and lapel buttons are also available without charge.

Join the national War on Waste! Send *now* for the free booklet on the Disston Conservation Plan. Write to Henry Disston & Sons, Inc., 533 Tacony, Philadelphia, Pa., U.S.A.





THIS FREE BOOKLET

tells you about the Disston Conservation Control Plan and contains reproductions of Instruction Cards, Order Blank and descriptions of other free material. Send for it *today!*



When writing Henry Disston & Sons, Inc. please mention Purchasing



THE same uniform quality, easy workability and durability you have always recognized in Hussey Copper is going quickly to the aid of America's war effort.

Every shirt sleeve in the Hussey organization is up to produce *more* Hussey Rolled Copper *faster*.

C. G. HUSSEY & COMPANY

(Division of Copper Range Co., Miners and Refiners of Pure Lake Copper)

Rolling Mills and General Offices: PITTSBURGH, PA.

Copper HUSSEY Brass

★ ★ ★ ★ ★ ★ ★ ★ ★

interconnected to form a 3-current coil meter. These are used on 3-phase 4-wire star connected service and are fully accurate wherever the voltages are not extremely unbalanced. CB-10 meters are of the two disk type and have two separate 3-wire elements. They are used on 2-phase, 5-wire service.

INDUSTRIAL HUMIDIFIER

■ Now available for textile mills, paper and printing plants and other industries where control of humidity is important in manufacturing, or for the storage of hygroscopic materials such as chemicals, leather, etc., is a new industrial humidifier just announced by Carrier Corp. of Syracuse, N. Y.

Low cost humidification is provided with the unit which is compact, easily installed and low in power consumption. Ceiling suspended for saving floor space, the industrial humidifier may be moved readily to accommodate equipment layout changes. Suitable for use in single or in multiple, the unit affords flexibility when mill extension or alterations are made.

Available in two capacities, the Carrier Industrial Humidifiers will provide 4800 or 6150 cubic feet of humidified air per minute, and evaporate up to 96 pounds of water per hour. Not only humidifying the air, the unit cleans, circulates and heats the air during winter. In summer the unit may be operated to provide evaporative cooling, cleaning and uniformly circulated air.

Built in two sections to facilitate handling, the unit, includes fan and motor, humidifier pack, heating coils, drip pan, dampers, lint catcher and housing. Attractive in appearance with rugged construction, the unit has all its parts easily accessible for inspection and servicing.

LUMINOUS BLACKOUT PAINT

■ A luminous "blackout" paint, which can be applied to objects of all kinds and renders them visible in the dark, has been developed by Maas & Waldstein Company, Newark, N. J.

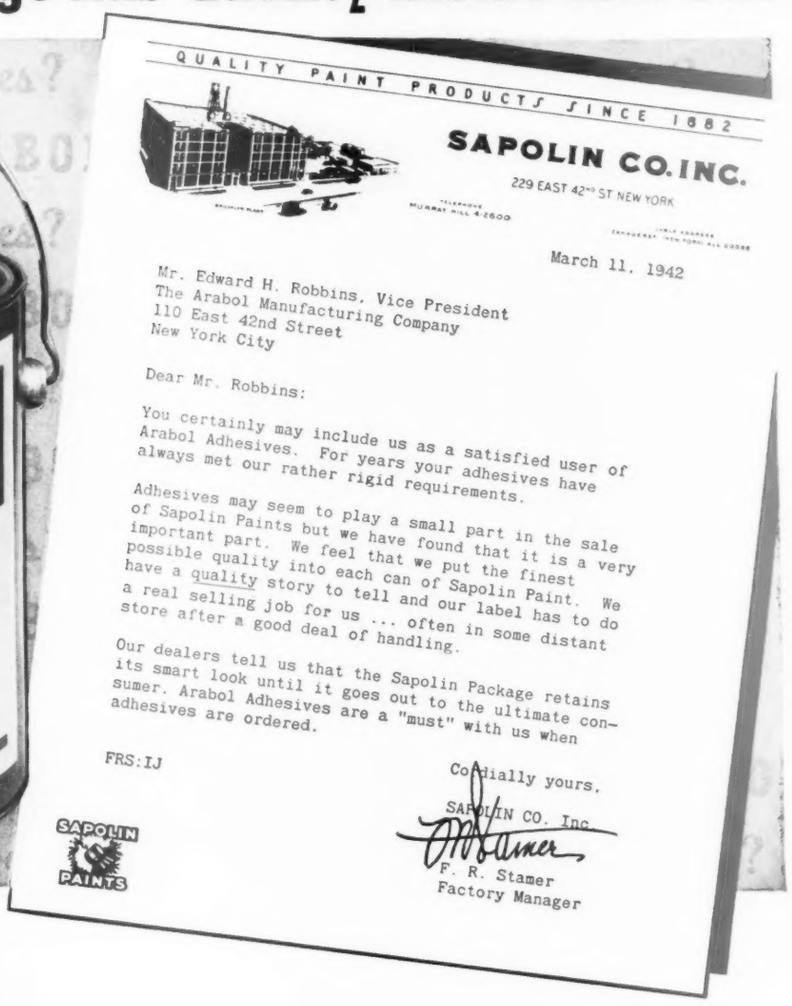
Unlike the radio-active finishes commonly used on watch dials, the new paint owes its luminosity to a substance which re-radiates light, according to the manufacturer. It contains no toxic materials. After the paint has been exposed to either daylight or ordinary electric illumination for a few minutes, it glows for about 20 hours and repeats the action after re-exposure.

The new paint must be used over a special primer and thinned out with a special thinner, both of which are supplied with the paint. One thick coat, or, preferably, several thin coats, of the paint produces a flat white finish suitable for indoor service. For a glossy finish, or for outdoor service, the paint is covered with a special clear topcoat. Each coat air dries in from 1 to 4 hours depending upon weather and other conditions.

When writing C. G. Hussey & Company please mention Purchasing

The Sapolin Package has Quality Inside and Out





QUALITY PAINT PRODUCTS SINCE 1882

SAPOLIN CO. INC.
229 EAST 42ND ST NEW YORK

March 11, 1942

Mr. Edward H. Robbins, Vice President
The Arabol Manufacturing Company
110 East 42nd Street
New York City

Dear Mr. Robbins:

You certainly may include us as a satisfied user of Arabol Adhesives. For years your adhesives have always met our rather rigid requirements.

Adhesives may seem to play a small part in the sale of Sapolin Paints but we have found that it is a very important part. We feel that we put the finest possible quality into each can of Sapolin Paint. We have a quality story to tell and our label has to do a real selling job for us ... often in some distant store after a good deal of handling.

Our dealers tell us that the Sapolin Package retains its smart look until it goes out to the ultimate consumer. Arabol Adhesives are a "must" with us when adhesives are ordered.

FRS:IJ

Cordially yours,
SAPOLIN CO. Inc.
F. R. Stamer
Factory Manager

SAPOLIN PAINTS

ARABOL

ADHESIVES HELP GIVE "EYE-APPEAL"

"Yes," says Frank Stamer, Factory Manager, "and Arabol Adhesives help us keep our costs in line to offset mounting expenses."

The Sapolin Company has been manufacturing quality paints for over fifty years. It knows the cash value that a smart looking package possesses in helping the dealer at the "point of sale." To get that something *extra* into the appearance of every can of paint, Arabol Adhesives are playing their part. Yes, and at a cost that is helping them in their all-out-war effort to minimize waste.

You too can find that Arabol Adhesives
Help Reduce Costs
Permit Highest Rate of Production
Assure Sales Appeal

For every packaging problem there is one, and *only* one adhesive, best fitted to assure the selling appeal of your package . . . that enables you to gear your production to its highest pitch . . . that helps reduce costs to an absolute minimum.

To help reduce operating costs, Arabol has pioneered in the development of "the one best adhesive for each specific job" for 57 years. Today, Arabol laboratories have 8,500 adhesive formulae on file. As a result, it is our privilege to serve many leaders in 100 different industries.

Your Arabol representative is a practical man who can give you money-saving, time-saving suggestions on the Arabol Adhesive best suited to help you solve any packaging problem. Be sure to see him when he calls.

THE ARABOL MFG. CO.
Pioneering Since 1885
Executive Offices: 110 East 42nd St.,
New York, N. Y.
Offices and Factories:
BROOKLYN · CHICAGO · SAN FRANCISCO
Branches and Warehouses in Principal Cities
Write us for Bulletin No. 65



Adhesives? . . . ARABOL!

When writing The Arabol Mfg. Co. please mention Purchasing

STAINLESS-CLAD STEELS

■ An example of how stainless-clad steels are now helping to relieve shortages in certain types of metals is illustrated by the case of the Cherry-Burrell Corp., Chicago, Ill.

They have developed an ingenious conveyor chain for moving milk bottles from the bottle washer to the bottle filler. The links in this chain were made from sheet brass, but when brass was classified as "critical" material the manufacturer was forced to either find a suitable substitute or discontinue the manufacture of this particular item.

A series of tests on samples of silver-ply stainless-clad steel, supplied by the Jessop Steel Company of Washington, Pa., convinced engineers at the Cherry-Burrell Corporation that this material was the solution to their problem. Stainless-clad steel was found to possess the non-tarnishing and corrosion-resisting properties of the brass sheets formerly used, while at the same time it permitted material costs to be held down to a reasonable figure. On the basis of these findings an order for several thousand pounds of silver ply stainless-clad steel was placed with the Jessop Steel Company for use in manufacturing the conveyor chain links for the Cherry-Burrell milk handling equipment.

Stainless-clad steel should be used extensively during the present emergency as a substitute for solid stainless, because the relatively thin layer of stainless in the clad product requires less alloy and yet effects the desired corrosion resistance. A 20% clad sheet or plate of stainless-clad steel, for example, saves 4/5 of the stainless steel required in a comparable sheet or plate of solid stainless. Continued acceptance of stainless-clad steel during peacetime is predicted because of its lower costs as compared to solid stainless steel.

SWEEPING COMPOUND

■ Carey Grease Ball Asbestos Sweeping Compound effectively removes oil and grease deposits from floors and driveways. This inexpensive asbestos compound contains no acids or caustics and will not cause erosion. It eliminates the danger of slipping and fire hazard due to oil and grease accumulations.

This compound is readily applied by sprinkling it on the deposit. Heavy grease may first require soaking with kerosene. Scrubbing with a broom causes absorption of the oil and grease which can then be swept away. A further advantage of this compound is that it can be re-used until thoroughly soaked. This product is recommended for garages, filling stations, factories, refineries, power plants, etc., where oil and grease spillage occur.

This effective compound is manufactured by The Philip Carey Mfg. Company, Cincinnati, Ohio, and is available in 50 lb. bags. Price will average from 3½c to 4c per pound.

MASS SPECTROMETER

■ For industrial research, refineries, and chemical plants, a mass spectrometer is announced by the Westinghouse Electric and Manufacturing Company.

The unit is essentially a high-vacuum tube containing electrodes, filament, slit system, and an electron collector. The gas or vapor to be studied is subjected to bombardment by a narrowly defined beam of electrons in the order of 10^{-6} amperes. The pressure of gas in the ionization chamber where the bombardment takes place, is about 10^{-4} mm of mercury or lower. The ions thus formed are accelerated through two narrow parallel slits in two parallel plates at a potential difference of from 100 to 1000 volts. The ions emerge from the second slit as a narrowly defined beam of very nearly the same energy. This beam is then deflected by a uniform magnetic field designed to sort the ions according to their mass-to-charge ratio. Thus the spectrometer gives directly information about the relative abundance of different kinds of molecular ion fragments formed when molecules of a particular kind are struck by electrons of known energy.

For quantitive indication of the gas to be measured, the ions strike a metal cup connected to ground through a very high resistance. The voltage developed across this resistor is fed to the grid of an electrometer tube. This amplifies

QUALITY



With A 20 Year Record

The twenty years of making quality tracing cloth behind Arkwright is *your* guarantee of quality today!

Twenty years of testing in Arkwright laboratories . . . of insistence on the highest quality raw materials and the highest standards of manufacture have prepared Arkwright for the present emergency. In spite of the vital need for speed and mass production, you can order Arkwright Tracing Cloths today with the same confidence in quality . . . the same assurance of rapid delivery that has made Arkwright the leading American producer of tracing cloth for twenty years. Arkwright Finishing Company, Providence, R. I.

Arkwright
TRACING CLOTHS

When writing Arkwright Finishing Company please mention Purchasing

ATKINS *Curled Chip* SAWS ★★★



Stacking the Chips in America's Favor

● When the chips produced by metal cutting saws shoot out like suddenly released clocksprings, it is a sure sign that material is being cut at an exceptionally high rate of speed. It is a sign that the shop or plant has put metal cutting on an all-out wartime basis and is meeting the need for utmost production on a vital part of its operations.

On a wide variety of armament materials, Atkins Curled-Chip Saws are turning in exceptional performance records . . . permitting the operation of modern heavy-duty power saw machines at maximum speeds . . . cutting more square inches of metal per minute . . . operating continuously for long periods without grinding . . . helping to "stack the chips" in this Nation's favor.

CHIPS LIKE THESE ARE HELPING WIN!

This close-up is an unretouched enlargement of a small section of the large photograph. It shows the metal chips removed by an Atkins Segmental Cold Saw, just as they accumulated on a part of the machine. Notice the unique coiled shape of the chips—the result of the scientific cutting action of Atkins Curled-Chip Teeth with large sized gullets and an inward curved cutting face. This type of tooth is available on Segmental Cold Saws, Circular Milling Saws, Power Hacksaw Blades and Band Saws.

E. C. ATKINS AND COMPANY
446 S. Illinois St. Indianapolis, Ind

When writing E. C. Atkins and Company please mention Purchasing

the current so it can be read with a sensitive galvanometer.

The spectrometer has been used successfully in studying patterns of organic molecules and in determining the purity of gas samples. Sensitivity in the case of air is one part in 100,000. Separation of mass 108 from mass 109 has been made.

Entire assembly is enclosed by steel panels having a black crackle finish except for the control panels which are Micarta. Panels are hinged for accessibility to all parts. The unit is mounted on a rubber-tired truck for complete portability. Only outside connections required are 110 volts a-c and water connections for cooling the pumps.

BALANCED HYDRAULIC VALVE

■ Strenuous and tiring valve-lever manipulation and a tendency toward "pressure-locking" have long been troublesome obstacles to users of hydraulic power at pressures of 1,000 lbs. or more. A new type of high-pressure hydraulic operating valve, which overcomes these obstacles, has been announced by Galland-Henning Mfg. Co. of Milwaukee, Wis.

Because the hydraulic pressure inside this new type valve is always balanced, it can never become "pressure locked". The lever is just as easy to operate from either "On" position as from "Neutral". As a result, this valve greatly steps up the productivity of high-pressure hydraulic machinery and eliminates undue fatigue on the part of the operator even when the valve is manipulated rapidly for hours at a time.

This new balanced valve has only one moving part. This fact, together with its simplified design, makes it practically wearproof, does away with nearly all maintenance expense. Built in 4 sizes to fit the most common sizes of hydraulic pressure lines, ⅜", ½", ¾" and 1", these valves may be specified as replacements on most types of hydraulically operated machinery.

BUTTERFLY VALVE

■ A recent application of the butterfly valve made by R-S Products Corporation of Philadelphia, Pa., for emergency duty has met enthusiastic reception because of its quick, automatic action.

This solenoid operated valve provides two-position control—either automatic opening or wedge-tight shut-off in case the electric power fails or is turned off due to any war emergency. In an open position the butterfly vane is held open by the magnetic action of the solenoid. When the electric power is shut off the trigger is tripped and the counter weight closes the butterfly vane by gravity, wedge-tight against the body of the valve.

In case of fire due to incendiary bombing, for instance, the valve in a gas or chemical line would be set for automatic closing. Should explosive or poisonous gases escape, automatic opening of an air pressure line would minimize the danger of personal injury or property damage. The valve itself can be constructed of any metal alloy and in various sizes for air, gas, steam, oil, hydraulic and other services. It must be reset by hand.

SADDLE TYPE TURRET LATHES

■ Two new saddle type turret lathes are shortly to be put into quantity production by Gisholt Machine Company.

Calculated to meet the urgent wartime requirements for this type of machine tool, the saddle type turret lathes will be equivalent in most physical specifications to the Gisholt 3L and 4L machines. In view of their design for large-scale production, however, the machines must be built on readily available machine tools and from materials obtainable in the large quantities necessary. For this reason, also, these nearly identical machines will each be provided with the most commonly used tools and attachments.

General specifications on these machines are as follows: 3R—5¼" spindle bore; 21" chuck; 28½" swing over ways; 20" swing over carriage wing; 21½" swing over cross slide. 4R—9¼" spindle bore; 24" chuck; 31" swing over ways; 27½" swing over carriage wing; 24½" swing over cross slide.

The machines will be available in large quantities in September and October respectively. Delivery dates will be governed purely by preference ratings.



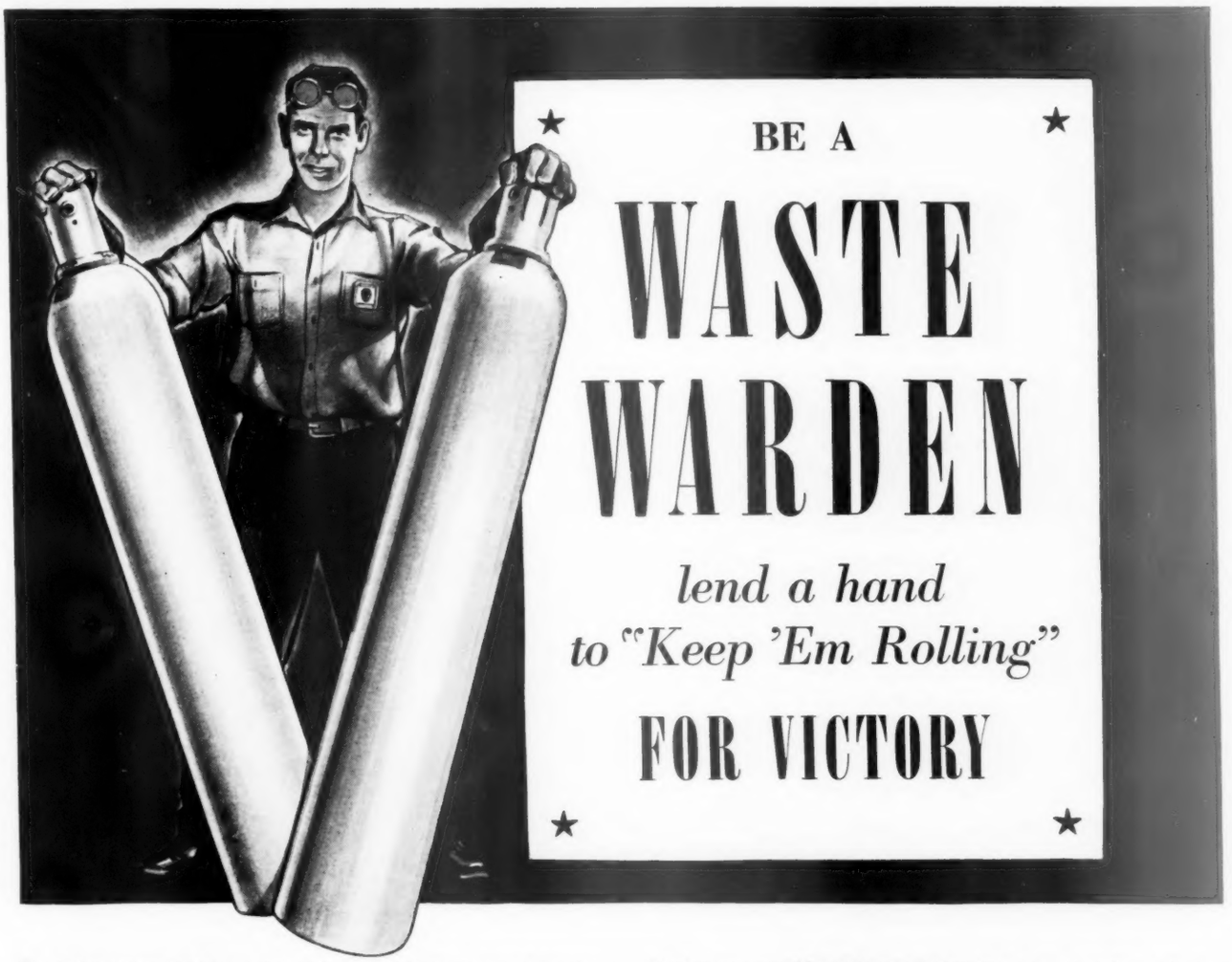
We, like others, are flooded with orders—orders for materials for a myriad of industrial applications. Some mean life or death—others may be almost equally important to our united production program.

Our plants are running at capacity—our staff is making every effort to be cooperative . . . Help us to help you and all of us by supplying orders with priority certificates completely and correctly filled in—we are obliged to ship on highest priorities first—issue your orders according to the formal procedure prescibed by the WPB. Time will be saved all around and time is precious . . . Remember, a slight delay on shipment of a comparatively unimportant material may have catastrophic consequences. Be sure you have included all required information on every form supplied.

THE HARSHAW CHEMICAL CO.

Cleveland, Ohio, and Principal Cities

When writing The Harshaw Chemical Co. please mention Purchasing



UNCONSCIOUS waste in this land of plenty can become a serious handicap in our war effort. Let's take a case in point — oxygen. This element is vital to the speedy production of tanks, trucks, guns, ships, planes, and shells.

Oxygen consumption continues to skyrocket and the bottleneck remains steel cylinders. They just can't be obtained fast enough. But, we can all help by making every cylinder most useful. Here's how:

Make yourself a Waste Warden. See that the cylinders keep rolling. Don't let them get tied up in inventory. Be sure that cylinders are shipped back promptly when they are empty — and be sure to get the most gas out of each cylinder. If you see to it that these and other "do" and "don't" suggestions are followed you will be making a worthwhile contribution to our war effort as well as helping yourself.

Join the "Waste Wardens". Keep the cylinders rolling.

WASTE WARDEN SAYS:

DO close cylinder valve after use.
DO check your hose and connections for leaks.
DO keep inventory low.
DO return empty cylinders promptly.
DO keep tips clean and free from carbon and slag.



DON'T use excessive pressure.
DON'T use oversize tip.
DON'T leave tip burning when not in use.
DON'T abuse cylinders.
DON'T leave cylinder valves open when gas is not being used.

Air Reduction



60 EAST 42nd ST., NEW YORK, N. Y.

IN TEXAS: MAGNOLIA-AIRCO GAS PRODUCTS CO.

AIRCO WILSON

IDLE CYLINDERS ARE PRODUCTION SLACKERS: *Keep 'em rolling for victory!*

When writing Air Reduction please mention Purchasing

DECEPTION PAINT

■ Specular reflection from mirror-like surfaces such as glass areas can immediately be neutralized or deadened by a new material devised by the Truscon Laboratories, Detroit, Michigan.

This product has the very useful property of immediately blotting out reflection from specular surfaces. It may be applied to glass, steel, concrete, brick, terra cotta, over paint, etc.

Other interesting properties have been discovered for this material. For example, if applied to the outside of windows on a southern exposure, it keeps out the glare of bright sunlight where it is not wanted and reduces temperature within the work room.

It is made in a clear white translucent, designated as "white sand," and tints. The tints are made to simulate the standard Army Camouflage Colors. That is to say, though the tints are translucent and admit daylight, yet when viewed from the outside, the glass appears to be opaque. Thus, colors can be selected to conform to the camouflage scheme used on a building to have the glass areas appear to be part of buildings or roof areas, or to merge into the surrounding terrain.

This material used in conjunction with blackout curtains, screens or panels, provides the triple function of (1) providing daylight to building interiors when daylight is wanted; (2) eliminating outside glare from windows under moonlight or flares; (3) presenting an opaque aspect when viewed from the outside which blends in with the camouflage or visual deception scheme of the surrounding areas.

ACCORDION-TYPE PARTITION

■ A practical and effective solution to the Lightlock and Blackout entrance problem has been developed by New Castle Products, New Castle, Indiana. The new Folding Fabric Blackout Partition provides a means of conforming to blackout standards and at the same time, permit access to and exit from lighted buildings.

The new blackout partition works on an accordion-like principle, assuring unusual flexibility. The partition derives its accordion-like operation from the specially-designed hinge lock self spacing hinge plate at the top. Folding on itself, it has a roller assembly traveling easily on an overhead track. A vertical pipe connected to the lead trolley and extending to approximately 6 inches from the floor, concealed in a loosely fitted front hem, gives rigidity to the front of the partition and serves as a standard. No handles, pulls, or assist ropes are furnished. The flameproof blackout fabric is attached with grommets at the top and to one side of the hinged plates—hanging free. The height of the fabric is 2 inches greater than the height of the room, dragging the floor and assuring adequate coverage. The partition presents a good appearance. Both sides of the hinge plate are covered with the same fabric. Valances are provided for each side to insure a perfect lightlock. The partition is attached to the wall with screws or nails to a covered wooden cleat extending the full length of the partition.

When not in use, the partition can be folded to the wall and no valuable space is consumed or lost such as that required for a permanently constructed lightlock.

WELDING ROD

■ To conserve nickel for our war effort, so that it can be used where it will do the most good, the American Manganese Steel Division of The American Brake Shoe & Foundry Company, Chicago Heights, Ill., now has available a new manganese steel welding rod.

An alloy steel containing 12 to 14% manganese, molybdenum and other elements, this electrode has resulted from research started by Amsco's metallurgists several years back looking for a better welding rod. It will replace Amsco Nickel-Manganese Steel electrodes, except in a few exceptional cases, thus conserving this critical metal without hampering reclamation of manganese steel and other ferrous equipment parts,

GRINDING THE WAY TO VICTORY

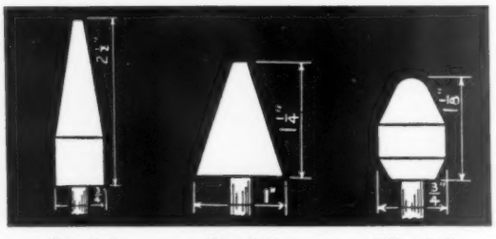
CHICAGO MOUNTED WHEELS



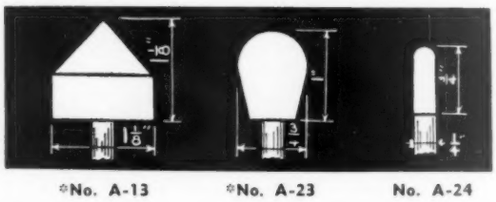
● Speed and Smoothness in cutting action—Longer Life—that's what you get when you use Chicago Mounted Wheels.

Made in all types of abrasives, grains and grades, mounted on shanks of different diameters and lengths — there is a Chicago Mounted Wheel to lick every grinding job from the most intricate cartridge dies to snagging hard-to-reach parts on tanks. For high-speed POLISHING, the sensational new Chicago Soft Rubber Mounted Wheels save hours of tedious hand work.

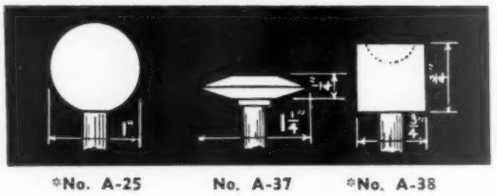
Illustrated is a group of wheels mounted on ¼" diameter shanks, for use with portable and precision equipment. These are one-half actual size. Hundreds of other shapes are available on 3/32", 1/8" and 3/16" diameter mandrels.



No. A-1 No. A-2 *No. A-6



*No. A-13 *No. A-23 No. A-24



*No. A-25 No. A-37 *No. A-38

* This shape also available in Soft Rubber Polishing Bond

TRY ONE FREE

That's the quick way to learn first-hand about these remarkable wheels. Tell us the kind of job, size and wheel speed you use and we'll send a test wheel postpaid.

CATALOG

Covers the complete line of Chicago Mounted Wheels and time-saving accessories for use with portable tools. Send for copy today.

CHICAGO WHEEL & MFG. CO.

Makers of Quality Products for 40 Years

118 S. Aberdeen St., Chicago, Ill.

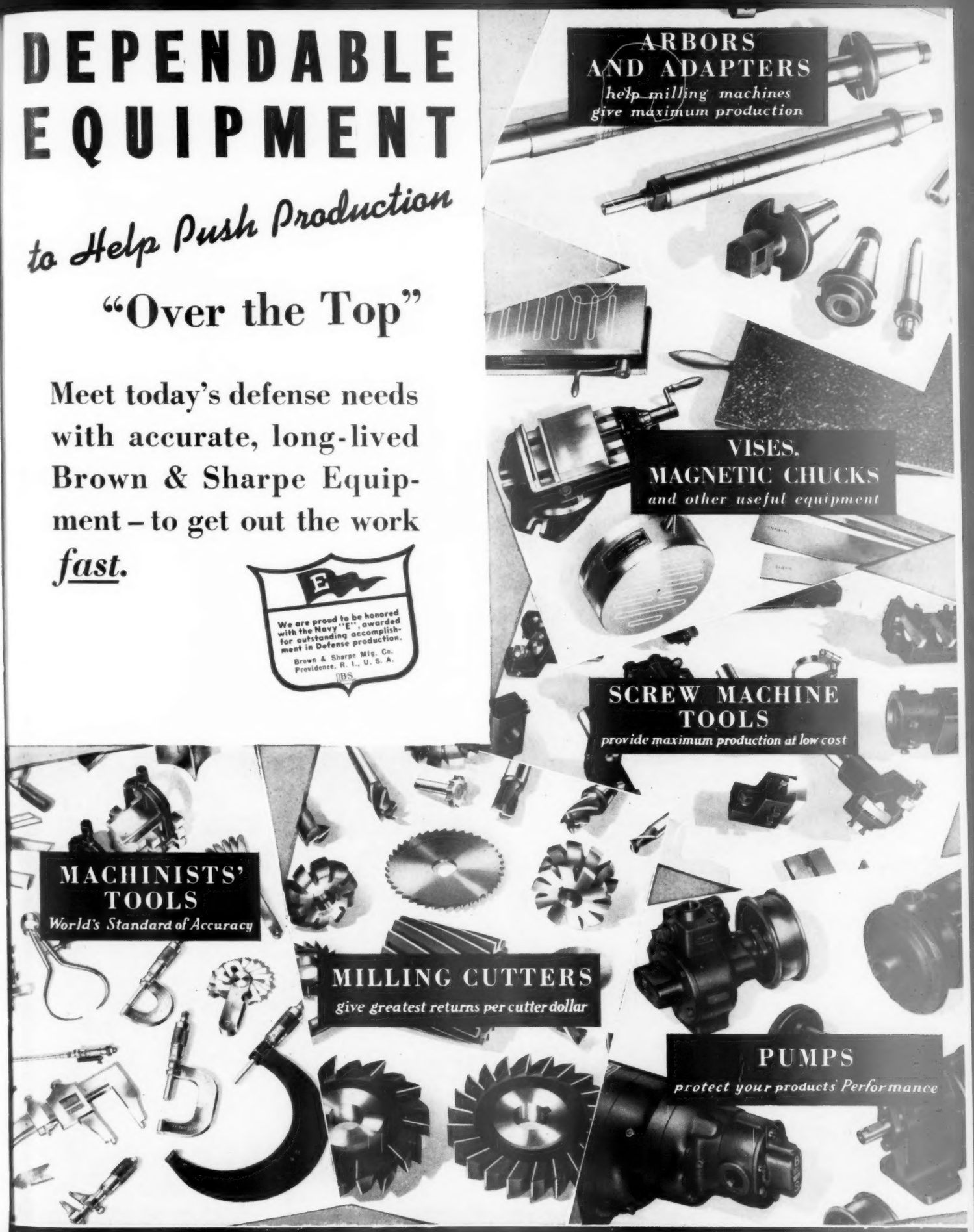
DEPENDABLE EQUIPMENT

to Help Push Production

"Over the Top"

Meet today's defense needs with accurate, long-lived Brown & Sharpe Equipment – to get out the work *fast*.

We are proud to be honored with the Navy "E", awarded for outstanding accomplishment in Defense production.
Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.
BS



BROWN & SHARPE

so necessary at this time. While molybdenum is costlier than nickel, this new rod will be priced the same as Amsco Nickel-Manganese Steel Rod.

Thorough tests under field conditions have shown that the new rod can be applied as readily as Amsco Nickel-Manganese Steel Rod and that it has ductility and tensile strength equal to or better than nickel-manganese steel rod as applied. It can be used to repair fractures in manganese steel parts, as well as for build-up work, depositing a uniform bead similar to that afforded by nickel-manganese electrodes.

This does not replace Amsco Mo-Mang; a high manganese, high carbon, molybdenum rod that is not as ductile as the new rod and is recommended for build-up work only. This is available bare and coated in 1/8", 5/32", 3/16" and 1/4" diameters; in 18" lengths. Standard containers, waterproof-paper lined wooden boxes, consist of 50 lbs. of rod.

POWER DRIVEN END BRUSH

■ A new power-driven end brush of particular importance to war production is announced by The Osborn Manufacturing Company, manufacturer of power-driven brushes, Cleveland, Ohio. The new brush is designed particularly to facilitate the cleaning of slag, scale, or oxidation from welds on inside corners, as well as other locations which are difficult of access.

An important feature of the new brush is the fact that it can be used in all standard power tools, whether air or electric. This facility is permitted by the special holder which has the additional advantage of permitting instant replacement of the brush part.

The brush proper measures only 1/2-inch across the end, or brushing surface, and may be had with any one of three diameters of wire—.025-inch for Type No. 91-S-2 brush, .035-inch for Type No. 91-S-3 and .090-inch for Type No. 91-S-4.

The new brush is considered, by Osborn officials, who have studied its actual trial use in war industry, as one of the most important of the company's many contributions to the war effort.

FIRE-EXTINGUISHING COMPOUND

■ DuGas Engineering Corp., Marinette, Wis., has announced a new dry fire-extinguishing compound, a powder developed specifically for extinguishing magnesium and incendiary-bomb fires. The manufacturers claim its advantages over salt or sand to be these. Takes less to extinguish the fire, it is moisture resistant, remains free-flowing even when stored for long periods, is non-abrasive, and will not react with burning magnesium. Its claimed advantage over water-spray is that it will extinguish quickly, while water-spray is used to accelerate the fire and shorten burning time.

This powder is a blend of various chemicals in correct proportions to give the desired characteristics. It can be applied directly from the container to the fire, or to the burning bomb, with scoop, shovel, extinguisher, or other mechanical means. This compound has been tested and approved by the Factory Mutual Laboratories for fires in magnesium alloys.

This is available in 45-lb. pails and in 12-lb. tubular containers. The quantity in the tube is said to have been proved by actual test to be amply sufficient to extinguish the common 2-lb. magnesium - thermit type incendiary bomb.

AIR HEATER

■ For heating ovens or furnaces used in annealing of aluminum, glass, and other materials, a new air heater is announced by Westinghouse Electric and Manufacturing Company.

Designed for temperatures of from 750 to 1150 degrees Fahrenheit, the unit has a heating element consisting of a one piece nickel-chrome ribbon, spirally wound around heavy porcelain insulators. Rating is 5 kilowatts for operation on 220-volt circuits. The complete heater is only 2½ inches thick and requires a space 12 by 33 inches for mounting.

★ ★ ★

A GOOD BUY

★ ★ ★

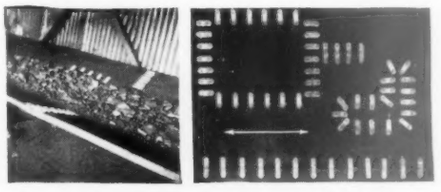
BELTS *Must* BE KEPT GOING

—and to help you keep the wheels turning in your plant you can safely rely on these belt fastening products

FLEXCO HD
BELT FASTENERS AND RIP PLATES

FOR CONVEYOR BELTS

Bulletin F-100 shows how to make "water-tight" butt joints in conveyor belts with Flexco HD belt fasteners. Also shows the various types of rips and patches that can be handled with these fasteners and with Flexco HD rip plates. Lists fasteners made of steel, "Monel," "Everdur" and "Promal." The use of these fasteners has increased tremendously and if you use conveyor belts from ¼" to 1½" thick you will want this bulletin.



• Flexco HD Belt Fasteners on a coal conveyor showing the natural troughing of the belt. At the right is a view showing the type of repairs that can be made with Flexco HD Belt Fasteners and Rip Plates.

ALLIGATOR
STEEL BELT LACING

FOR TRANSMISSION BELTS

Bulletin A-50 shows how to handle the lacing of flat belts up to ⅝" thick. Also how to cut out a damaged or worn section and splice in a piece right at the machine without loss of time and without requiring any tool but a hammer and a cutter. Tells when to use Steel, Monel or Everdur lacing for different services and gives list prices on long lengths up to 96" in both steel and alloys. Every purchasing department and belt maintenance man should have a copy.



• Throughout the whole range of transmission belts from thin tapes to belts ⅝" thick any maintenance man can easily lace a belt with Alligator as shown here.

ALLIGATOR
V-BELT FASTENERS

FOR V-BELTS

Bulletin No. V-200 shows how the new cross-woven fabric core V-Belts are fastened with Alligator V-Belt fasteners. With this belting and these fasteners it is now possible to apply V-Belts to a much wider range of service such as line shaft and machine drives where the endless type of V-Belt could not possibly be applied. This bulletin should be in the hands of every designer of machines where V-Belts are to be used.

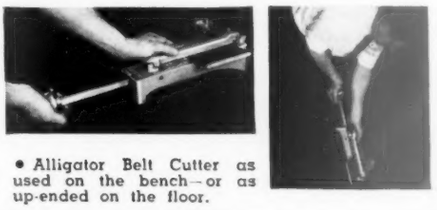


• Alligator "V"-Belt Fasteners as applied to a cross woven fabric core V-Belt on a machine tool. The view above shows a close-up of the fastener. This fastener is not to be used to repair broken or stretched out endless cord V-Belts.

ALLIGATOR
BELT CUTTER

FOR BELT CUTTING

Bulletin BC-300 shows how the Alligator -Belt Cutter speeds up belt fastening work. It cuts any belt (except metal stitched) up to ½" thick and 8" in width with one movement of the cutter.



• Alligator Belt Cutter as used on the bench—or as up-ended on the floor.

Sold by supply houses everywhere

FLEXIBLE STEEL LACING CO., 4697 LEXINGTON STREET, CHICAGO, ILLINOIS

When writing Flexible Steel Lacing Co. please mention Purchasing

MILLING CUTTERS

■ At a time when manufacturers of standard milling cutters are unable to keep up with the demand, McKenna Metals Co., Latrobe, Pa., announces a method by which simple facing cutter heads may be made in almost any shop. Due to its high speed of cutting, this single-bladed milling cutter, employing Kennametal tools, will often work more efficiently than a standard cutter requiring many high speed steel blades.

Designed with a large negative spiral angle of 35° to 55° and positive hook of 15° to 25,° this cutter mills steel efficiently.

For roughing, with cuts up to ⅜" deep, a 35° negative helical angle and 15° positive hook on a 12" diameter cutter head has been found to work efficiently. For light finishing cuts a negative helic of 55° with 20° positive hook angle is most efficient. The hook angle should be less on a smaller diameter head.

These cutters should be run to give 300 to 600 ft. per min. peripheral speed, with a table feed of .008" per revolution, depending on the material being machined. A 6" dia. head gives about 3" per min. table feed at 380 r.p.m. (600 ft./min. cutting speed). Clearances should be kept to a minimum and only a slight radius used. No coolant should be used as it is impossible to keep the cutting point flooded at the speeds employed.

The Kennametal-tipped blades can be removed from the cutter heads and reground quickly, an important advantage over standard cutters, which require removal of the entire head from the machine, with consequent loss of time.

FOR TROUBLE-FREE SERVICE UNDER EXCESSIVE PRESSURES AND SHOCKS

MILFORD
FLEXIBLE REZISTOR

Hard-Tooth — Annealed-Back

HIGH-SPEED STEEL
HACKSAW BLADE

WILL NOT BREAK ON
AUTOMATIC-FEED HACKSAWING MACHINES

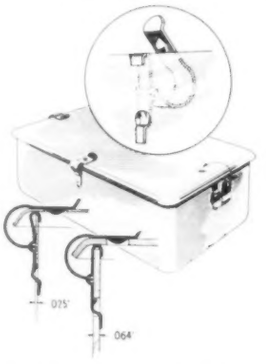
The Milford FLEXIBLE REZISTOR begins life as one solid piece of high-speed steel and ends it that way — after plenty of high-speed cutting. It is shatterproof and unbreakable in service.

HAND SIZES HAVE EASY-STARTING TEETH



THE HENRY G. THOMPSON & SON CO.
NEW HAVEN CONN., U. S. A.
Makers of Milford Profile Saw

JUNCTION BOX CLIP



■ **Junction box covers** may now be attached in less than one-fourth the usual time, without the use of bolts, rivets, nuts or tools of any kind.

The new and faster method is with an ingenious, two-piece speed clip that can be snapped by hand into holes in the sides of boxes or other enclosures. It is so constructed that it can be used universally on boxes ranging from .025" to .064" in thickness. Similar speed clips for thicker material are also available.

Both parts of clips are made of high carbon spring steel. One part snaps into a hole in the side of a junction box, while the second part hinges on the first and has an integrally formed dimple on the end which snaps into a hole or mated dimple in the box cover.

With these clips, covers are locked to boxes with a firm spring tension, but can be instantly removed or attached without the use of any tools. Junction boxes now in use can be adapted to these new fasteners by merely drilling and notching as required.

Manufactured by Tinnerman Products, Inc., Cleveland, Ohio.

FLUORESCENT LIGHTING

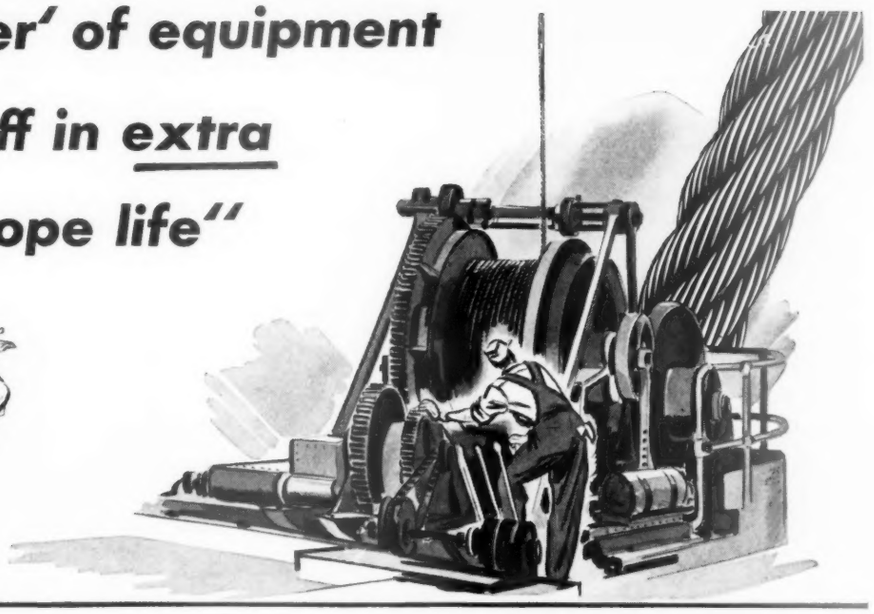
■ The Commercial Metal Products Co., Chicago, Ill., has just announced its new Luminaire, which offers ideal industrial lighting for war needs today and for industry tomorrow.

Among the many features claimed for the Luminaire are (1) lowest installation cost; (2) No lamp starters (lower maintenance cost); (3) No "Strob"; (4) More efficient lighting; and a host of other outstanding points.

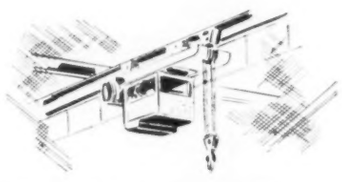
This product gives a light that not only helps assure perfection in the finished product, but does so without sacrificing the employee's welfare. Workers themselves naturally prefer the shadowless surfaces, free of "strob" and flicker, where nothing is lost to sight at any time.

"This 'once-over' of equipment pays off in extra wire rope life"





"If you're out to get a full measure of service from your wire ropes, it's just good, common sense to check the equipment it runs on. Not just when you get around to it, but regularly—carefully and often. Make a close check-up when a new rope is installed ...and then check again, frequently—*before* the rope starts to show signs of wear. Take a crane, for example, with a worn sheave.



It will go right along handling every bit of work it always did. But that sheave will cut and squeeze the wires ...and the rope will be through, long before its time.

Here are some of the things to look for—some of the reasons why you often hear an operator blame the rope when it was really his own equipment that shortened its life.

First, see if any sheaves are out of alignment. Then check for deeply worn grooves with a gauge,—like this...

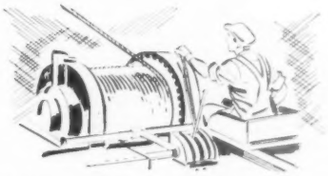


The grooves may be scored by an old rope or one of them may have a broken rim that calls for replacement. Sheaves may turn hard or wabble because of worn or damaged journals. That's tough on your ropes, too.

It's easy to realize the jerk or shock at the fastening when a wire rope whips. Vibration has the same kind of effect, building up a great many small shocks. Too much play in the rope may be to blame...even a bent shaft.



Check for displaced or faulty rope guards. Then find out from the operators if there are any clutches that stick or grab...loose bearings or anything else that causes the pull on a rope to be uneven or jerky.



And remember to consult your wire rope manufacturer on any special problems. There are local representatives near you who have practical experience in ferreting out any "bugs" in your equipment that may be keeping your wire ropes from delivering a maximum of service."

JOHN A. ROEBLING'S SONS COMPANY
TRENTON, NEW JERSEY
Branches and Warehouses in Principal Cities



ROEBLING
"Blue Center"
STEEL WIRE ROPE
PREFORMED OR NON-PREFORMED

VARIABLE SPEED TRANSMISSION

■ The largest variable speed transmission to be equipped with hydraulic automatic control was recently built by Reeves Pulley Company, Columbus, Ind., for use on a rotary veneer lathe in a South Carolina plant.

This transmission, weighing 4300 pounds uncrated, is nearly 9 feet long, 5 feet wide and stands almost 4 feet high, overall. It transmits 26 hp at maximum speed and provides infinitely variable speeds over a speed ratio of 3:1.

The hydraulic control provides completely automatic speed variation on the transmission. The purpose, in this particular installation, is to maintain uniformly high peripheral cutting speed on the log from full original diameter down to the smallest diameter at end of the cut. Without this control, speed of rotation of the log would decrease as its diameter decreased, so that much less veneer would be cut toward the end of the run than at the start. However, with hydraulic control, peripheral speed is automatically increased as diameter is reduced, thus maintaining constant high cutting speed and production rate.

AIR RAID ALARM SIREN

■ **Here is** an air raid siren that is audible for miles—has a rising sound pitch or howl that reaches its maximum tone in from three to five seconds. Furthermore, it is well adapted for signaling because of a sharp sound cut-off. Operates on steam or air at 50 to 250 pounds pressure, 425° F. total temperature. All bronze or steel and bronze construction. Made by the Foster Engineering Company, Newark, N. J.



PLASTIC CORK COATING

■ **An improved** plastic cork coating that stops dripping from condensation or sweating pipes, walls, ceilings, tanks, etc., has been developed by the J. W. Mortell Company, Kankakee, Ill.

The first product of this kind introduced by this company for the same purpose was more limited in its use to large areas because it required power spray equipment to apply it, but No-Drip has a greatly enlarged field, not only in industry but in the home and on farms, due to its easier and quicker method of application by using an ordinary paint brush.

NoDrip is spread ¼" thick over any metal, concrete, brick, plaster, tile, wood, composition, galvanized or painted surfaces, corners, angles or corrugated ceilings. NoDrip can be painted any color.

Complete information is contained in a new illustrated circular showing interesting uses of NoDrip and a copy will be sent on request.

UTILITY TRUCK

■ Here's an item by The Service Caster and Truck Co. of Albion, Michigan that may help you speed production. Built to serve as a repair truck, it's also used as a portable work table or parts truck.

Construction is of steel, with the exception of the top, which is made up of 1¾" x 1¾" maple planking, glued and bolted together. One side of the truck consists of twelve drawers, plus two roomy compartments. A panel pulls out and down over the drawers when locked, it offers protection against theft. The other side has one large compartment divided by a shelf, sliding doors enclose material.

Specifications are as follows: Length 60 inches, height from floor to top 42½ inches, width of truck 30 inches. Running gear consists of two eight inch rigid casters front, and two eight inch swivel casters rear. The swivels are equipped with lock and brake. All turn over Hyatt bearings.



Completely Machined

You save time two ways when you purchase Johnson Universal Bronze Bars. First, you get excellent delivery service...on more than 350 stock sizes.

Then, Complete Machining–I.D.–O.D. –ENDS–eliminates costly machining . . . eliminates all danger of imperfections or undersurface defects. Why not try Johnson UNIVERSAL Bronze on your next job? Your local industrial supply distributor carries a complete stock.

Write for free **STOCK LIST**

JOHNSON BRONZE

Sleeve BEARING HEADQUARTERS

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It's a Fact . . . !



THIS IS LIGHT!

EMERY BOARDS – ESSENTIAL TO MILLIONS OF FASTIDIOUS WOMEN – ARE JUST ONE OF THE MANY TYPES OF SPECIAL SHAPED AND SIZED JEWEL SANDPAPERS.



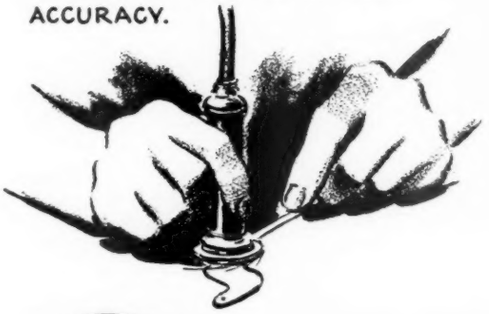
THIS IS ODD!

SOME BIG PRODUCE MARKETERS USE ANOTHER GRADE OF JEWEL SANDPAPER TO CLEAN EGGS. A SPECIAL SHAPED DISC HELD IN THE PALM OF THE HAND DOES THIS ODD TASK QUICKLY AND EFFICIENTLY.



THIS IS PRECISION!

SMALL, FINE DISCS OF JEWEL SANDPAPER GRIND INTRICATE TYPE BARS FOR BUSINESS MACHINES DOWN TO A PRECISION FIT. FITTED TO A FLEXIBLE SHAFT GRINDER, THESE JEWEL DISCS DO THE JOB EVENLY, SMOOTHLY – TO THOUSANDTHS OF AN INCH ACCURACY.



THIS IS HEAVY!

PORTABLE ELECTRIC DISC GRINDERS FITTED WITH A SPECIAL POLISHING JEWEL SANDPAPER ARE USED TO GIVE A BOMBER'S WINGS THEIR SMOOTH SURFACE. JEWEL SANDPAPER LASTS LONGER ON THESE HIGH SPEED TOOLS, DOES THE JOB FASTER AND CLEANER. FOR THE *BIG* JOBS AND THE *SMALL* JOBS, THERE'S A SPECIAL TYPE OF JEWEL SANDPAPER FOR *EVERY* TYPE OF GRINDING AND POLISHING.

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JEWEL ABRASIVES

Made by Abrasive Products, Inc., South Braintree, Mass.

LEVERAGE SPEED CLAMP

■ New in principle and timely in application because of increased use in defense production, is this fulcrum leverage speed clamp put on the market by the Grand Specialties Co., Chicago, Ill.

Four second clamping and one hand operation is claimed through setting with ratchet rod instead of turn screw. "A" is spring activated pawl for ratchet. "B" is replaceable swivel. Case hardened casting, "C" contacts vise-like tightening screw with fulcrum action providing downward pressure on work. According to manufacturer there can be no slipping of work, even on beveled surfaces. Side screw tightening permits clamping in close quarters and also quick release. Rod and screw are copper plated and "V" shoes may be furnished for pipe and rod holding.

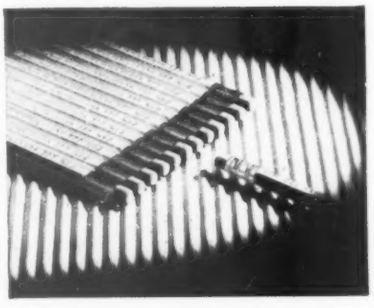
EMBOSSING PRESS

■ This new arbor press outfit, made by The Acromark Corporation of Elizabeth, N. J., embosses (raises letters or figures) into metal name plates, parts, tags, badges and metal checks making a mark that is indestructible and difficult to duplicate. By embossing numbers, you guard against counterfeiting of your badges, tags or other parts.

This handy machine incorporates the use of an upper and a lower holder. The type in each holder is quickly interchanged by simple thumb pressure on the holding clip. The accurate square ram of the press insures perfect meshing of characters.

An outstanding feature is the mirror finish metal plate back of the female holder that shows a reflected image of each character face which expedites character changing and aids in matching the male and female characters. Prompt deliveries can be made to Defense plants.

PLASTIC TIP PENCILS



■ The photograph shows a comparison of plastic and brass ferrules on the pencil manufactured by Reliance Pencil Corp., Mt. Vernon, N. Y. In 1942, quality group pencils will have plastic ferrules while such materials as paper-fibre, steel and wood are receiving consideration for the inexpensive line.

The smooth, streamlined appearance of the plastic-tip pencils is a vast improvement on the old style using a ridged, brass ferrule. The plastic is tasteless and harmless, which should be a boon to "pencil-chewers." The material is a cellulose-acetate formula combining the products of Tennessee-Eastman Corp., Bakelite Corp and Monsanto Chemical Corp., molded by Universal Plastics Corp., New York. Chemical reaction of ordinary plastics to gasket lacquer used in painting pencils necessitated creation of special plastic formula.

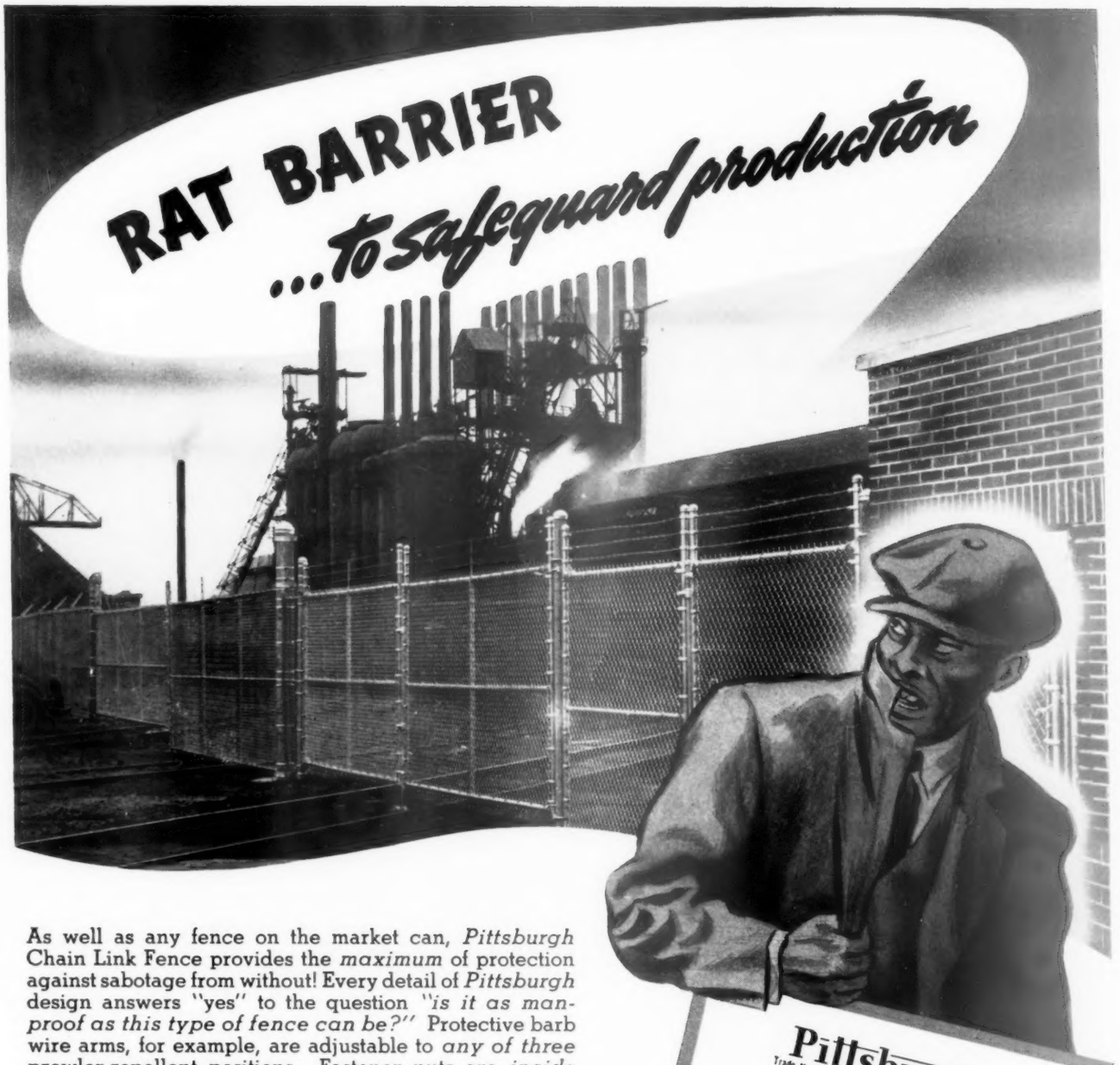
The war curtailment of rubber consumption will increase the use of pencils without erasers. 1942 will also bring a product simplification in the pencil industry, allowing greater production to meet additional demands of defense and elimination of many styles.

MOLDING COMPOUND

■ A new phenolic molding compound having a very low power factor (0.07 at 1000 k.c.) and high dielectric breakdown and fatigue has recently been introduced by Durez Plastics & Chemicals, Inc., of North Tonawanda, N. Y.

This material was especially developed for radio parts as condensers, crystal holders, etc. It has been designated as Durez 11863 and is said to have excellent moldability, being easy to handle in compression molds. Durez 11863 is available in one color—natural.





As well as any fence on the market can, *Pittsburgh* Chain Link Fence provides the *maximum* of protection against sabotage from without! Every detail of *Pittsburgh* design answers "yes" to the question *"is it as man-proof as this type of fence can be?"* Protective barb wire arms, for example, are adjustable to *any of three* prowler-repellent positions. Fastener nuts are *inside* the fence, defying predatory fingers. Barbed-top fabric selvage discourages hand-holds; linked mesh rejects foot-holds. Heavy duty posts, rails, braces, tension bands and fittings withstand shock and impact. *Pittsburgh gates,* including these same resistant features, are equally effective barriers . . . yet they operate easily, swinging a full 180° on sturdy hinges or sliding wide open by hand or motor power. No other Chain Link Fence has *all* the desirable quality features of *Pittsburgh.* For complete erection service consult your classified telephone directory or write

PITTSBURGH STEEL CO., 1649 GRANT BLDG., PITTSBURGH, PA.

Pittsburgh —
Trade Name for Pittsburgh Steel Company Products

A Great Name in Steel

Pittsburgh Steel Company is a completely integrated company producing from its own ore, coal and other raw materials, many semi-finished and finished steel products. Among these products are: Steel Ingots . . . Blooms . . . Billets . . . Tube Rounds . . . Shell Steel . . . Shell Forgings . . . Wire Rods . . . Carbon and Stainless Steel Wire . . . Finished Wire Products . . . wide range of Carbon, Alloy and Stainless Seamless Steel Tubes. Inquiries invited.

Pittsburgh Chain-Link Fence

When writing Pittsburgh Steel Co. please mention Purchasing

PERSONALITIES *in the* NEWS

Philip A. Hollar, formerly Fuel Purchasing Agent for the Pennsylvania Railroad and for the past several months loaned to the staff of the Association of American Railroads as special representative, has been named Acting Director of the Section of Materials and Equipment in the Office of Defense Transportation.

James Balog has been appointed to the purchasing staff of the Harris-Seybold-Potter Co., Cleveland. He was formerly with the Superior Foundry Co.

A. P. Richard, Purchasing Agent of Hotel Dieu, New Orleans, has been elected secretary of the Louisiana Hospital Association.



R. D. BERRY

Ralph D. Berry, General Purchasing Agent of the Davol Rubber Co., Providence, R. I., has been elected Vice President of that company. Mr. Berry has been with the Davol organization since 1915. In addition to his responsibilities as head of the purchasing department, he has held the offices of Assistant Secretary, Secretary and Assistant Treasurer of the corporation. An alert and progressive executive, Mr. Berry became affiliated with the New England Purchasing Agents Association soon after his entry into the buying field, travelling to Boston for the monthly meetings. He was instrumental in organizing the Rhode Island Purchasing Agents Association in 1920 and has been consistently active in its work ever since, but has never relinquished his membership in the New England group, having the unique distinction of maintaining active membership in two local associations. In the Rhode Island Association, he became Vice President in 1922-1923, and after two terms in that office he served as President in 1925-1926. When the office of National Director was established, Mr. Berry was the first man to perform this important function for the Association, and subsequently was elected Vice President of the National Association of Purchasing Agents, representing District No. 9 on the national Executive Committee.

K. P. Chinn has been appointed Assistant Purchasing Agent of the Southern Pacific Lines, with headquarters at New Orleans. He succeeds the late T. L. Jackson. Mr. Chinn has been in the railroad service since 1912, chiefly in stores work, and has been assistant superintendent since 1937.

E. A. Herr, Purchasing Agent for Servel, Inc., Evansville, Ind., has been granted a leave of absence from that position to serve as purchasing representative of the War Production Board at Wright Field, Dayton, Ohio.

Walter J. Weir, for the past fourteen years Purchasing Agent for the Sordoni Construction Co., Wilkes-Barre, Penna., has resigned to accept a position with L. B. Smith Co., Inc., Harrisburg, engaged in war construction work.

IF YOU HAVE BEEN BUYING HIGH SPEED STEEL BLADES . . .

Recent government regulations have greatly restricted the supply of 18-4-1 High Speed Steel available for hacksaw blades. To users of this type of blade, we suggest Starrett S-M Molybdenum Special Alloy High Speed Steel Blades as an effective substitute. These tough, fast-cutting blades were developed by Starrett for cutting hard alloys and for metals hard to cut with ordinary blades. In life, performance and all-round cutting ability, they come close to matching 18-4-1 High Speed Steel Blades and because of their lower cost are actually more economical. Convince yourself that Starrett S-M Molybdenum Hacksaws are the blades to use for the duration. Order a trial supply from your mill supply dealer today.

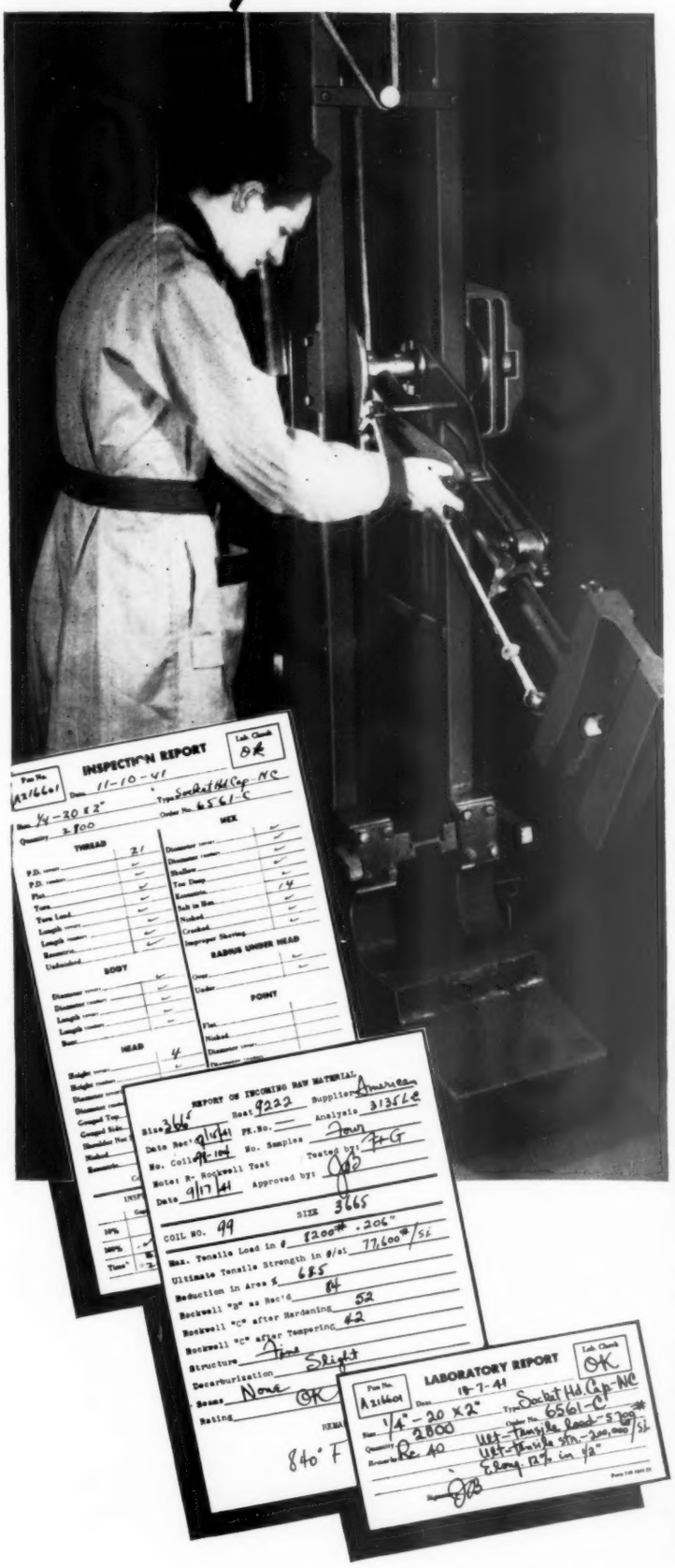


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World's Greatest Toolmakers

STARRETT

PRECISION TOOLS • DIAL INDICATORS • GROUND FLAT STOCK
HACKSAWS • METAL CUTTING BANDSAWS • STEEL TAPES

Quality-Control Through Every Step!

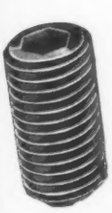


-makes every PARKER-KALON SOCKET SCREW as perfect as a screw can be made...

PARKER-KALON'S Quality-Control Laboratory – without counterpart in the screw making industry – stands guard over every P-K Socket Screw produced. This is your assurance of 100% dependability! "Doubtful Screws" – screws that look all right but some of which fail to work right – have been eliminated by Parker-Kalon's step-by-step check-up routine.

Beginning with a careful analysis of the special alloy steel – strength factors, physical and working characteristics must surpass rigid specifications. Routine tests and inspections through every step of manufacture are your protection against even the slightest defect.

This protection may save you costly delays on the job – it's the big reason why essential industries specify PARKER-KALON SOCKET SCREWS on work that *must* keep moving! Parker-Kalon Corporation, 202-204 Varick Street, New York, N. Y.



Quality-Controlled

Complete test and inspection routine covers: Chemical Analysis; Tensile and Torsional Strength; Ductility; Shock Resistance under Tension and Shear; Hardness; Head diameter, height and concentricity; Socket shape, size, depth and centricality; Class 3 Fit Threads; Clean-starting Threads.



PARKER-KALON

Quality-Controlled

SOCKET SCREWS

Give the Green Light to Defense Assemblies

When writing Parker-Kalon Corporation please mention Purchasing



Think of your Responsibilities!

You, Mr. Purchasing Agent, are like the man on the bridge. The owners of your business craft are little interested in the storms you encounter. The only question they apply to you is: "Did you bring the ship safely into port?"

You will be better equipped to navigate the turbulent sea called Buying if you chart your course each month with PURCHASING. Try it and see for yourself. You'll find a handy subscription coupon below.

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PURCHASING

The National Magazine for Purchasing Agents



K. C. Ferguson

Kenneth C. Ferguson, Director of Purchases for The H. K. Ferguson Company of Cleveland since 1920, has been named Vice President in Charge of Purchases. Mr. Ferguson has been in the purchasing field for 25 years, serving the engineering construction industry. In 1917 he joined the Austin Company of Cleveland, working with the government on priorities in addition to purchasing for the naval proving grounds then under construction at Indianhead, Md. The following year he went to New York in charge of all purchasing for the Austin Company. Since joining the Ferguson organization, he has supervised purchasing activities in both the headquarters office and in the field.

W. K. McClure, General Purchasing Agent for the Wilson-Jones Co., Chicago, recently celebrated the completion of thirty-five years of service in that position. Mr. McClure is one of the twelve charter members of the Chicago Purchasing Agents Association. Prior to joining the Wilson-Jones organization, he was stationery buyer for the American (now Quaker Oats) Company and the Great Western Cereal Co.

Gordon Lochridge has been appointed Assistant Purchasing Agent for the Kaiser Co., shipbuilders, at Vancouver, Wash. He was formerly with the CBI purchasing department at Coulee Dam.

Russell Wetherall has been placed in charge of priorities and purchasing for the Olympic Foundry Co., Seattle. He was formerly in the purchasing department of the Seattle Hardware Co.

Leonard R. Moore, Purchasing Agent for the Defender Photo Supply Co., Rochester, N. Y., has been elected to the Board of Directors of the corporation.

Dave Cowden, formerly Purchasing Agent for the Arkansas-Louisiana Gas Co., Arkansas Fuel Oil Co., and Arkansas Pipeline Corp. at Little Rock, has been appointed Service Manager for the companies, supervising purchasing, telephone, automobile and truck transportation, and warehouse facilities. Mr. Cowden has been with the organization since 1921. He became Assistant Purchasing Agent in 1929, and Purchasing Agent in 1936.



Ripley please note!

SOME 200 different adhesives are required to place these cartridges in a soldier's hands!

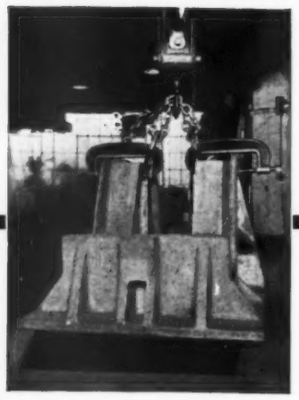
His uniform, his equipment, his manuals, even the food he eats—none of these could be produced without the use of adhesives in hundreds of different forms.

* * *

Silent and unseen, adhesives are even more essential in war than in peace. As America's industrial plants switch to the production of war materials, our organization is fully prepared to meet their changing needs—speedily and efficiently, as we have done for half a century.

NATIONAL ADHESIVES
DIVISION OF
NATIONAL STARCH PRODUCTS INC.

ARMSTRONG





Drop Forged "C" Clamps

Because they never give, these ARMSTRONG Heavy Duty "C" Clamps are safely used, day after day, to carry these gigantic steel automobile body dies where the slightest spread or spring or the least slippage of the screw would result in disaster.

Here is dependable quality that you, too, can rely on. Look for the Arm-and-Hammer Trade Mark. It guarantees a better clamp.

HEAVY DUTY "C" CLAMPS
Drop Forged from special steel, heat treated to give extra strength and stiffness. These stronger clamps have long hubs and alloy steel screws. Capacities from ¾" to 12½".

MEDIUM SERVICE "C" CLAMPS
A strong clamp adapted to general use that gives maximum holding power consistent with convenient weight. Drop Forged, heat treated body. Special steel screw with free acting swivel. Capacities from 2" to 18".

LIGHT SERVICE "C" CLAMPS
A light, strong clamp, fast operating. Ideal for general shop use, for assembling, holding airplanes, automobiles, boats, etc. Forged, heat treated body, special steel screw. Capacities 2" to 12".

DEEP THROAT "C" CLAMP
This clamp is designed with an extra deep throat to give maximum clearance required by body builders, woodworkers, welders, etc.

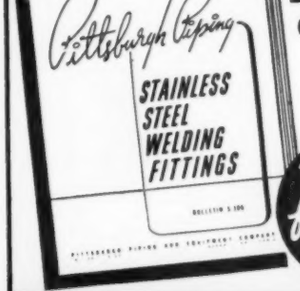
TOOL MAKERS CLAMPS
Drop Forged and heat treated to increase toughness. Screws are also drop forged, have square swivel end. Capacities 2" to 12".

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
303 N. Francisco Ave., Chicago, U.S.A.
Eastern Warehouse & Sales: 199 Lafayette St., New York



B. M. SMARR

Benjamin M. Smarr has been appointed Director of Purchases of The Aviation Corporation, being attached to the operations staff at the Detroit divisional office. The appointment follows the creation of a new department growing out of the rapidly expanding organization required to handle interdivisional matters in connection with large war contracts placed with the various divisions. Mr. Smarr has had 25 years experience in the automotive industry. He was formerly Specification Engineer for the Central Axle Division of General Motors, and has served continuously for the past twenty years on the General Purchasing Committee of GM. He is widely known for his connection with the basic standardization work done in the automotive industry during the 1920's.



INFORMATION for Purchasing Agents on STAINLESS WELDING FITTINGS

Pittsburgh Piping Stainless Welding Elbows simplify piping fabrication and save valuable time. Made in 90° and 45° styles in Stainless Type Nos. 308, 316, 317, and 347. Sizes ¾" to 8". Bulletin S-306 describes the complete line.

Write for your copy.

Write for your copy

PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST., PITTSBURGH, PA.

ARMSTRONG-BRAY
STEELGRIP
FLEXIBLE BELT LACING



Immediate Delivery!

—on both standard types of belt lacing.

STEELGRIP that is applied with a hammer that penetrates belting easily and clinches securely to make a strong, flexible, smooth joint. 2-piece hinged rocker pins take up wear. In boxes or long lengths for wide belts. It compresses belt ends and prevents fraying. 8 sizes.



BELT HOOKS

Applied with any standard make lacing machine, these belt hooks come on double (patented) aligning cards that hold hooks in perfect alignment and prevent card end waste. 6 sizes.

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5378 Northwest Highway, Chicago, U.S.A.

IF YOU GO TO THE INFORMASHOW,
BE SURE TO VISIT OUR BOOTH No. 360

CONSIDER THESE IRON BODY VALVES TO SAVE BRONZE

THE "KING-CLIP"—a husky iron body gate valve which employs bronze for the internal working parts only. For many services, the "King-clip" will serve equally as well as a bronze gate valve. Easily taken apart for cleaning. A valve that withstands hard, continuous usage.

THE "FERRENEWO" — an iron body globe valve that may be used instead of bronze valves for many services. All internal parts are made of non-corrodible alloys and are renewable. Seat and disc are regrindable. The "Ferrenewo" will give excellent service with negligible upkeep cost.

Investigate the adaptability of these iron body valves to your needs.



Fig. 1640
"King-clip" Gate Valve
150 lb. S. P.



Fig. 1021
"Ferrenewo" Globe Valve
150 lb. S. P.

ESTABLISHED 1862
THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO
BOSTON PHILADELPHIA
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

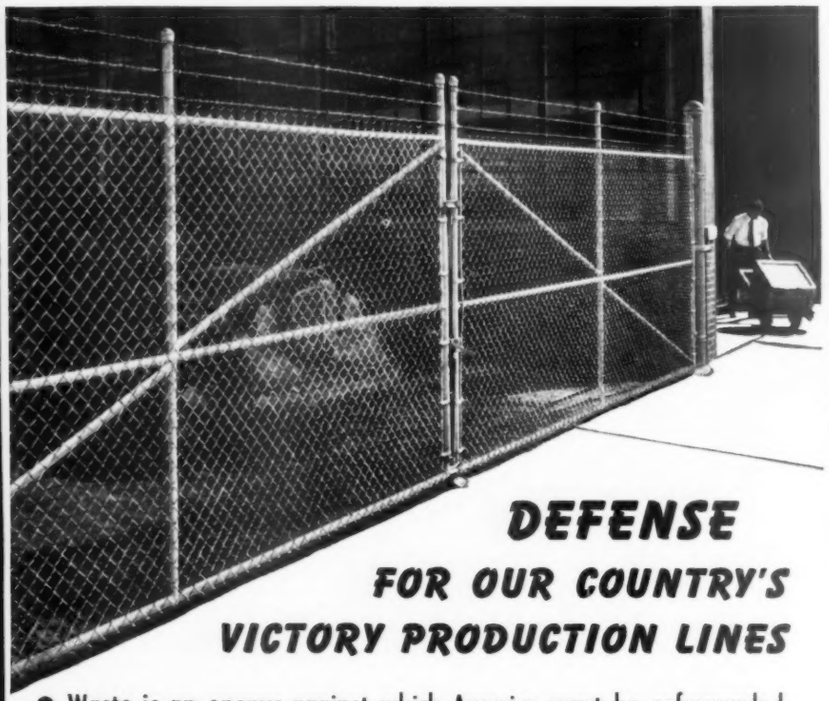
Since virtually all materials used in the manufacture of valves are on the list of critical materials, valve users are urged to furnish the highest possible preference ratings on their orders. This will be of mutual helpfulness.

LUNKENHEIMER VALVES BOILER MOUNTINGS LUBRICATING DEVICES

When writing The Lunkenheimer Co. please mention Purchasing

PAGE FENCE

America's First Wire Fence — Since 1883



DEFENSE
FOR OUR COUNTRY'S VICTORY PRODUCTION LINES

• Waste is an enemy against which America must be safeguarded, and loss of production time or vital materials due to careless or malicious trespassing is dangerous waste. • Now, more than ever before, industrial properties need the protection of Page Fence, the modern chain link barrier made by the company which was founded by the originator of woven wire fence in 1883. • Distribution, construction engineering and erection of Page Fence are handled by local, responsible firms which are factory trained and long experienced—more than 100 independent firms which own their plants and hold membership in PAGE FENCE ASSOCIATION, Headquarters: Monessen, Penn.

VICTORY FIRST
At the Page mills, men, machines and materials are on an all-out schedule for production of fence to protect plants working on Government orders

See ACCO advertisement in this issue, page 130

PRODUCT OF PAGE STEEL & WIRE DIVISION—AMERICAN CHAIN & CABLE COMPANY, INC., BRIDGEPORT, CONN.



R. G. Forsberg

R. J. Murray, Purchasing Agent of the Jessop Steel Co., Washington, Penna., has been made secretary and assistant treasurer of the company. R. G. Forsberg succeeds Mr. Murray as Purchasing Agent. Mr. Forsberg has served as Assistant Purchasing Agent for the past year, and prior to that was for eight years in the purchasing department of the Timken Roller Bearing Co.

Merle E. Towner, General Purrchasing Agent for the Western Maryland Railroad, addressed a recent meeting of the New Haven, Conn., Rotary Club, on "Where Do We Go From Here?"

A Grave Responsibility

Back of every man in service are ten other men keeping him supplied with materials. If these materials are not properly identified —causing loss of valuable time in re-classifying—those men on the firing line suffer. Don't take chances. Now *time* is all-important. Mark all materials with

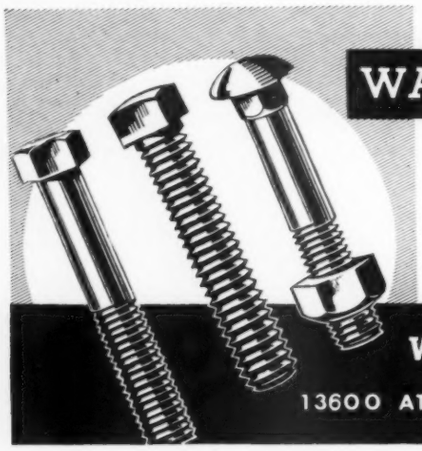
PAINTCIL

Proof against the elements. Won't rub, crack, peel off or fade.

Actual paint in stick form. Handy as a pencil to carry and use.

Write or wire for samples.

HELMER-STALEY, INC.
327 West Huron St., Chicago, Ill.



WASMER *Tru-Fit*

NUTS & BOLTS
CAP SCREWS
SET SCREWS

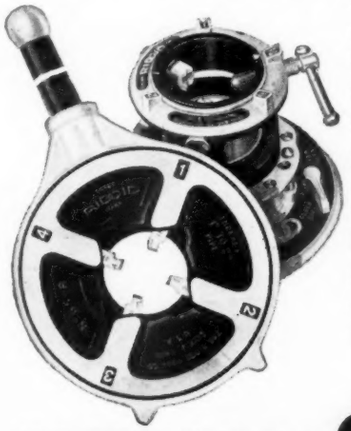
WASMER BOLT & SCREW CORP.
13600 ATHENS AVE. CLEVELAND, O.



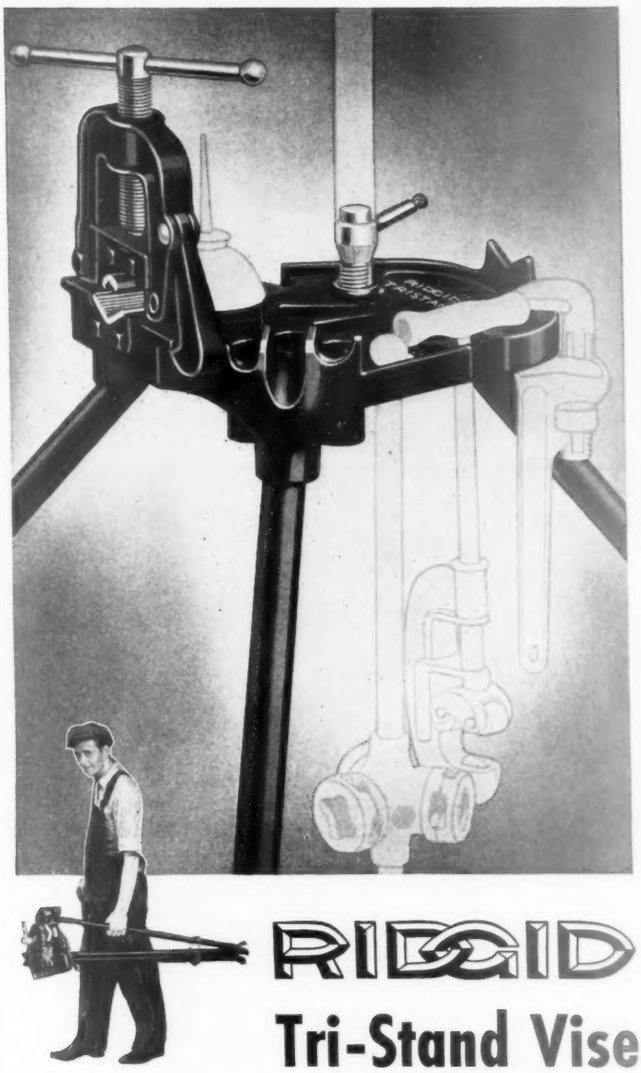
This Quicker Pipe Threading Also Speeds The Victory!

You set this RIDGID No. 65R to size in only 10 seconds . . .

It's a time-beater, a work-saver. It threads 1" to 2" pipe, 4 sizes, with 1 set of clean-cutting high speed steel chasers — no extra dies to lug around or fool with. You change size in a few seconds: screw up workholder, move setting post, screw it down again.



Speedy mistake-proof workholder sets instantly, one screw to tighten and *no bushings.* Any thread variations, any pipe — and it's made of rugged steel and malleable with drop-forged hardened steel cam plates. . . . It licks delays and waste of priceless time — ask to see it at your Supply House.



RIDGID Tri-Stand Vise

An Efficient Workbench wherever you need it

It's a war against time — make minutes count more, with this handy RIDGID Tri-Stand. Take it easily to the job — the fold-up legs quickly set up again and you have a complete workbench, plenty of room for oil cans, dope pots and slots for tools, a pipe rest and 3 benders that won't collapse pipe. Chain or yoke vise; yoke type has LonGrip jaws to protect nickel pipe. Screw down feet and ceiling brace if you want them — but it's well balanced so you don't have to baby it, and that goes for its rugged construction, too! *See it at your Supply House.*

All RIDGID Pipe Tools are sold through Supply Houses

RIDGID

Pipe Wrenches, Cutters, Threaders, Vises

THE RIDGE TOOL COMPANY
ELYRIA, OHIO, U.S.A.

Work-Saver Tools for America's Big Job in 1942

When writing The Ridge Tool Company please mention Purchasing



SAVE MACHINES

PRESSED STEEL COMPANY: "On our 30 Toledo Presses, we have been using LUBRIPLATE Nos. 70, 105 and 130-A with outstanding success for several years. Our parts replacement expense during the past year on our presses was nil, which we entirely attribute to the use of LUBRIPLATE."

SAVE TIME

AIR TRANSPORT LINE: "We have very successfully used LUBRIPLATE No. 130-A in assembly of airplane parts. Its use not only facilitates our assembling work, but also affords protection against rust and corrosion."

SAVE COST

TOOL STEEL MANUFACTURER: "We find that since adopting LUBRIPLATE No. 4 about three years ago for use in all of our electric motor bearings, that consumption of lubricant has been reduced 90 per cent, temperature of motor bearings has decreased as much as 40 degrees F.—and consequently, maintenance costs have been lower."

SAVE WORRY

BLOWER MANUFACTURER: "Since adopting Ball Bearing LUBRIPLATE several years ago, our ball bearing replacement expense has been reduced upwards of 50%."

7 FACTS ABOUT LUBRIPLATE

1. *LUBRIPLATE produces an ultra-smooth, wear-resisting bearing surface.* ***2.*** *LUBRIPLATE reduces friction, thus lowering maintenance and power costs.* ***3.*** *LUBRIPLATE resists rust, corrosion and pitting.* ***4.*** *Most LUBRIPLATE products are white. LUBRIPLATE assures clean lubrication.* ***5.*** *LUBRIPLATE outlasts ordinary lubricants many times.* ***6.*** *LUBRIPLATE is economical—a little goes a long way.* ***7.*** *LUBRIPLATE is available in fluid and grease types for every need.*

DON'T let friction get in and sabotage your precious production machines that are so badly needed these days. Scored, damaged or burned-out bearings, costly repairs, idle machinery waiting for repair parts must have no part in today's vital need of more and more production.

Proper lubrication will keep this vandal "friction" out of your plant . . . lubrication that provides a tough load-bearing, long lasting film between all shafts and bearings, gears, chains and other contacting machine parts. LUBRIPLATE lubricants will do it. LUBRIPLATE is in a class by itself. It possesses properties not found in conventional lubricants.

Don't take our word as to the efficiency of LUBRIPLATE. Read this letter from one of the best known manufacturers of metal products in this country:

> "As you know, our machinery is of the high speed type, and with the constant increasing of the speed of these machines, lubrication has presented itself to be one of our biggest problems to solve before we can increase speed to a much greater extent. The results of our experience with LUBRIPLATE have been very gratifying as it has caused our machines to run much cooler, and the fact that LUBRIPLATE stays put and lasts longer, it has minimized our lubricating costs. LUBRIPLATE has done all you have claimed it to do."

With such conclusive evidence, don't you think it's your patriotic duty to investigate LUBRIPLATE? Our staff of engineers and dealers everywhere are at your service. Write, phone or wire today.

LUBRIPLATE DIVISION
FISKE BROTHERS REFINING COMPANY
SINCE 1870
NEWARK, N. J. TOLEDO, O.
DEALERS FROM COAST TO COAST

LUBRIPLATE
ARRESTS PROGRESSIVE WEAR

When writing Fiske Brothers Refining Company please mention Purchasing



PAPER PROFITS WHICH ARE NOT ON PAPER

By E. L. CADY

WITH paper mills producing at the rate of 110% of capacity over a six day week, there still are shortages of some kinds and brands of paper commonly used in office and business functions. Paper manufacturers in some instances are advising consumers to consult with paper dealers and make the best of available stocks. And this means more thinking about how to buy these kinds of paper.

Furthermore, changes of more drastic nature are in sight. WPB is entering into conferences to reduce the present 10,170 or more weights and sizes of paper of all kinds to not over 1,968, thus saving at least 175,000 tons of pulp per year. Many of the types and sizes affected will be in the office-use field, which indicates compulsory changes which will force buyers to think carefully.

The bright spot in this picture is that it is hard to think about conserving paper without finding ways to save other items and to get more work done in less time. For paper is not an item by itself. Its proper use affects such matters as the lives of typewriter platens—made largely of rubber—and the speeds with which typists work, and the real usefulness of forms and of color codes, and the speeds and exactnesses with which messages may be transmitted and records kept. Study the better use of paper, and you think about better management of these matters too.

How "Fine" Should Paper Be?

One of the hardest drives will be to reduce the amounts used of "finer" paper stocks which use superior fibers in their make ups. There is no definition of "fineness" in paper. Fine papers are assumed to be those which are superior in whiteness or other purity of color, in general appearance, in crackle and in "feel". If used on a good typewriter by a good typist, a fine paper will yield a better looking letter than a paper which is not so fine.

This reduction of fineness should not be carried too far. Nothing on earth has greater nuisance value than inferior paper in creating office fatigue or preventing work from getting done.

But the fineness has to be suited to the task. Nothing, for example, is too fine for executive correspondence, especially as that correspondence may be subject to repeated reviews by government officials and others.

In general practice, the finest papers are reserved for executive correspondence, the next finest for general correspondence, a lower grade is used for inter office communications and a still lower grade for production control forms, purchase orders, and the like.

Fineness is a matter of experience, reputation and opinion within wide limits when comparing brand to brand. But if new types of paper are to be adopted, a simple test may be performed. This is to type a full sheet in ordinary letter form, the typing to be done by a stenographer who does not know that any test is being made, then to examine the individual words with a magnifying glass. If the typewriter is in good shape and has a good ribbon in it, then on a fine paper the type characters will appear clear cut and clean edged, but on a less fine paper those characters will have irregular or "fuzzy" edges. This fuzziness, although not visible to the naked eye, will on a full sheet give a less pleasing appearance than the clear cut characters.

Within wide limits, fine papers are economical because on them the typewriter ribbons retain the ability to give clear cut impressions longer. This not only means longer life for ribbons, but also more work from secretaries. For typists work faster and more happily when the effect of the paper is to make their work look nice.

Fine papers also have greater color stability and are better if correspondence is to be kept for long periods or is to be exposed to the light on bulletin boards and the like.

Photostats and Photo Offset

When copies of letters or forms, etc., are to be reproduced by photostat, photo offset and similar processes, the hiding power of the ink on the paper can be highly important. This is especially true if enlarged copies are to be made. And hiding power is much greater on some kinds of papers than others—it is highest on fine papers.

A simple test for hiding power is, first, to type full sheets of duplicate subject matter on sheets of known good hiding power and on the sheets to be tested, and then compare them for overall appearance of evenness and blackness as seen by the naked eye. The second step in this test is to use a high power magnifying glass and look for "rivers and lakes" of white, uncovered surface within the

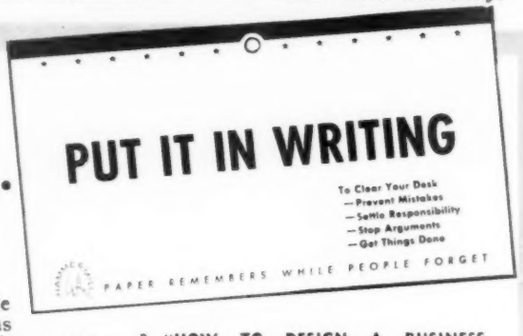
LESS FOOTWORK—MORE HEADWORK

that's what we need!



"TALK ABOUT CONFUSION! Phones jingling, questions flying, work interrupted every few minutes. There's plenty of hustle and bustle . . . but most of it is just waste motion. If we're going to keep pace with wartime conditions, we've got to get organized to handle work more efficiently."

TO AVOID CONFUSION..



THAT is the simple principle which has helped hundreds of business men avoid confusion, speed work, gear up to handle emergency jobs efficiently and accurately. "PUT IT IN WRITING"—on well-planned printed forms that handle routine work smoothly, swiftly. Forms that assign jobs, keep them moving, follow them through, get them done right—and fast.

To keep this principle constantly before the people in your office, Hammermill offers you free a supply of "Put It in Writing" cards for desk or wall. And to help you put this principle to work, you have the six business helps listed below. Read about them. Then mail the coupon for the ones you need—today.

1. **"21 WAYS TO KEEP A CLEAR DESK."** Shows how to avoid "junk heap" desks, organize work. Gives specific, tested ways to clear away details, step up efficiency, pin down responsibility. Outlines proved time-savers to help men in 6 different office jobs.
2. **"HOW TO DESIGN A BUSINESS FORM."** Booklet shows how to design printed forms that assign work, tell what's to be done, when and how to do it . . . and make sure it gets done right.
3. **SPEED THE JOB WITH COLOR.** Booklet explains the "Signal System" to identify departments, branches, or projects by paper colors. Tells how colored paper saves time, prevents errors, organizes detail.
4. **QUICK WAY TO ORDER PRINTING.** Handy layout and order sheets are ruled for—quick, accurate layout of printed forms. They guard against errors, misunderstandings, expensive alterations. Provide all information essential to ordering. Specify pica or elite spacing.
5. **REDUCE ERRORS, SAVE MONEY** with a complete plan for handling printing orders. This printing production control organizes ordering routine into a smooth-working procedure that produces better printed pieces in less time, with less worry over detail.
6. **HOW TO SELECT THE RIGHT PAPER.** File-size sample books of Hammermill Bond, Duplicator and Mimeo-Bond help you choose quickly the correct color, finish and weight of paper for office stationery or duplicator equipment. Also envelopes to match.
7. **"PUT IT IN WRITING"** cards (indicate how many).

Use this valuable coupon

Hammermill Paper Co., Erie, Pa.
Please send me, free, the office helps checked.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ____

Name .....

(Please attach coupon to your company letterhead) PUR-MAY

black portions of the typed characters. These areas will dull the appearance of any reproduction; they are, of course, spots where the hiding power of the ink has not been great enough. If the ink has hidden well the surface of the known good paper but not that of the samples, then the tested samples are not up to the usual standard.

Letters written on paper of inferior ink-taking or hiding power, are displeasing in appearance, even though the naked eye may not detect the reason.

Depth of Inking

If the paper has a blotting effect so the ink goes well below its surface, then the initial life of a typewriter ribbon when the ink color is truest will be shorter, but the full life of the ribbon before it refuses to yield enough ink for an impression may be longer. Deep inking in a paper often means shortness of sharpest impression life of a ribbon, but longer total life.

The values of this feature of paper depend somewhat upon the kind of typewriter in use and the touch of the typist. For typewriters that "push" the type, and for typists with light touches, deep inking papers may be better. For typewriters that "hit", and for typists with heavy touches, a paper which does not ink so deeply may be preferred.

Deep inking means deep erasing and more erasing troubles. It also means reduced opacity.

Sometimes a paper which has inked only lightly will begin inking deeply. This may be caused by a change to a more heavily inked typewriter ribbon. But a more likely cause is that the paper has been permitted to dry out and become "ink hungry" by improper storage. Paper should not be stored in hot, dry places, nor in too damp ones.

Beware of Smudging

A common sense rule is that ink should penetrate the paper to the point where it will not smudge, and no deeper.

Smudging may occur when the sheet is handled immediately after typing, or even while the sheet is in the machine. It is, of course, the rubbing of undried or unabsorbed ink across the face of the paper.

An effective test for smudging is to type on a sheet, then quickly rub that sheet against a clean one, observing the results. Here again, common sense must be used. Do not expect complete freedom from smudge and the highest ability to take the eraser and the longest life for ribbons, all in the same sheet. It is enough if the test indicates that smudging is not to be expected under ordinarily careful handling.

Smudging is especially to be expected if the typist is to make many carbon copies of each letter and therefore must strike the keys hard.

Opacity

Opacity of paper will become more important to stationery if a recommended practice is followed and long letters are written on both sides of the letter heads



Now we know what "Total War" means . . . and we're for it!

LIKE MOST AMERICANS, we didn't understand what total war means.

We had a vague idea that it meant "going all out"...throwing everything we have into the battlefield. Now we realize that total war means more than that...it means sacrifice, inconvenience, and hard work for every one of us.

For example, on March 6, the Government issued an order prohibiting the sale of any typewriter, standard or portable, new, used, or rebuilt, to the general public!

And on March 15, in agreement with the Government, we have drastically curtailed the manufacture of portable typewriters, and our future portable production is designated for use only by the armed forces.

Also, beginning March 15, the production of standard typewriters has been sharply reduced, and such standard machines as we build in the future will go only to Government agencies, to the armed forces, or to manufacturers of war supplies.

As a result, we are now able to increase our actual war production. All of the resources of the Royal Typewriter Company, as much as possible of our skilled labor, every available inch of our floor space, are being converted to the manufacture of ordnance!

THIS, WE NOW REALIZE, is the true meaning of total war . . . and we are *for* it, lock, stock, and barrel! We are proud of the fact that the Royal Typewriter Company has been called upon to halt its normal business in mid-air and to "go all out" for Democracy.

We believe that every manufacturer in the United States whose facilities can be used for wartime production will feel the same way. "Business as usual" has no place in the scheme of total war. It may be an inconvenience to you, may even be a sacrifice on your part, to have to do without a new Royal Typewriter. But . . . if the Axis powers were to win this war, it would be a long, long time before you could buy *any* new typewriter!

By manufacturing ordnance now, Royal is hastening the day when you, a free man living in a free country, can once more walk into any store in the land and buy anything you want!

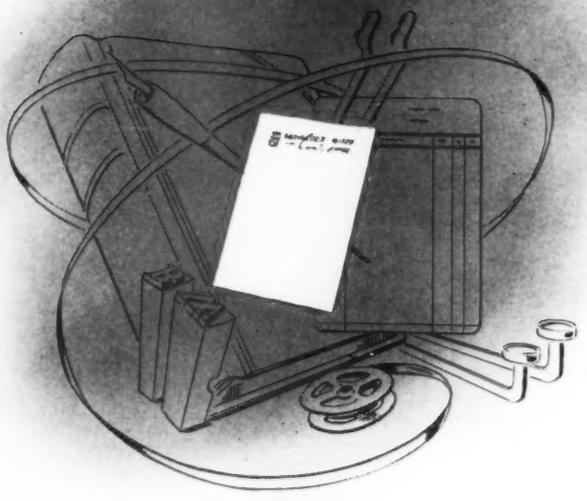
THAT, AS WE SEE IT, IS WHAT THIS WAR IS ALL ABOUT!

ROYAL TYPEWRITER CO., INC.

Makers of Roytype* ribbons and carbon paper. Expert typewriter service available everywhere.

*Trade-mark Reg. U. S. Pat. Off. Copyright 1942, Royal Typewriter Co., Inc.

Records ARE BUT MARKS ON *Paper*



Without paper, your invaluable and irreplaceable records, accounts and correspondence files would not exist. Small wonder good paper rates so high as an essential tool of business and industry . . . and should receive the most careful consideration as an item of purchase.

When selecting paper for important purposes, follow these simple rules:

Choose a paper that is equal to the task. The percentage of cotton fibre content is a fair index of the quality, durability and general working and handling qualities of any paper.

Choose a paper that is made for the purpose. Byron Weston Company manufactures high grade ledger, index, bond and machine accounting papers — each in an appropriate range of grades and weights to suit any requirement.

Your printer, stationer or paper supplier will gladly help you select the right Weston paper for any purpose.

IF YOU BUY PAPER you should have the news, ideas and information in *Weston's Papers*, a special publication for paper buyers. To receive a copy write Department H.

BYRON WESTON COMPANY, Dalton, Massachusetts

IF IT'S WORTH KEEPING, KEEP IT ON A

WESTON *paper*

LEDGERS
BYRON WESTON ED. LINEN RECORD
(Extra No. 1, 100% New White Cotton and Linen Clippings)
DEFIANCE LEDGER (100% Cotton Fibre Content)
WAVERLY LEDGER (75%) CENTENNIAL LEDGER (75%)
WINCHESTER LEDGER (50%) BLACKSTONE LEDGER (25%)

INDEXES
DEFIANCE INDEX (100%) WINCHESTER INDEX (50%)
WESTON'S MACHINE POSTING INDEX (50%)

MACHINE ACCOUNTING
TYPACOUNT LEDGER (75%)
WESTON'S MACHINE POSTING LEDGER (50%)

BONDS
WESTON'S BOND (Extra No. 1, 100%)
DEFIANCE BOND (100%)
HOLMESDALE BOND (75%)
WINCHESTER BOND (50%)
BLACKSTONE BOND (25%)

to conserve paper. Opacity is important now to forms which are used on both sides, and to the increasing number of letter heads which have pictures, lists of products, maps and other data printed on their reverse sides.

A common test of opacity is to type a sheet of known quality and one to be tested, then hold both up to the light with the typed sides away from the observer and see how they compare.

An equally simple but more informative test, is performed with the aid of a sheet of carbon paper and a pointed weight such as a bit of steel rod or a test tube partly filled with sand. In this, the sheet to be tested is laid on a flat surface. The weight is mounted so it is free to move vertically and to bear upon the sheet, but cannot move horizontally —this can be done by holding it in the fingers of one hand.

The carbon paper is placed face downward upon the sheet to be tested, and also is held so it cannot move horizontally beneath the weight. Finally, the weight is allowed to bear upon the carbon, and through it upon the sheet to be tested, and the sheet is pulled slowly along the flat surface and beneath the weight and the carbon. Since the carbon cannot move, only one small point on its surface will mark the test sheet, and the resulting mark will be black and heavy at the point where the motion of the sheet beneath the weight begins, and increasingly lighter and grayer as the carbon wears thin. The sheet then is held up to the light with the marked side away from the observer, and the point at which the carbon mark no longer shows through is indicated by marking with a pencil. A test sheet of known quality is similarly treated and marked for comparison.

By using standardized weights to bear on the carbon, lights of carefully measured and standardized outputs, and carbons of standardized marking powers, this test can be reduced to index number indications of opacity if desired. But usually, simple observation is enough.

By testing the sheet first with the typewriter and then with the weight and carbon, the opacity under ink penetration and at the surface alone become comparable, and judgment can be formed as to whether lack of sufficient opacity is inherent in the sheet or is due to the touch of the typist.

Erasability

Paper which will erase very easily can be produced by applying heavy coats of sizing. The trouble is, this makes the ink penetration shallow and the smudge propensities high. Some papers which erase with unusual ease have surfaces which, under long storage in hot and dry files, will peel off, making these papers unstable for records purposes. Nevertheless, the abilities of typists to make corrections cleanly and quickly, may outweigh other considerations for some kinds of work.

The simplest test of how well a paper will erase, is to type upon it, erase a word or so, and re-type over the erased areas. If the re-typed words do not

Prominent Users of Strathmore Letterhead Papers: No. 31 of a Series



Pan American Clipper Ship—Boeing 314

This letterhead records A THRILLING WAR EFFORT

Braving, every hour, the hazards of war, Pan American Airways are speeding men, mail, and materials vital to victory across the aerial life-lines of the democracies. With thrilling precision, the Clippers are linking all countries of the western hemisphere, linking Alaska, Hawaii, Europe, Africa, the Far East... across routes totaling over 90,000 miles.

Paper plays its part in all of this operation... for essential maps, records, communications. And much of the important correspondence of this company is written on Strathmore Bond.

The Strathmore mills are supplying papers for many other war activities. And, in so far as STRATHMORE BOND and other Strathmore papers are available, we offer them to private industry as the letterheads that stand for *quality with economy* and that help to write... for all who use them...a record of leadership.

Strathmore Paper Company, West Springfield, Massachusetts

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TODAY'S PICTURE

Current Strathmore advertising points out how essential paper is to the war effort, features leading industries that use Strathmore in their Victory programs, stresses the point that good letterheads help maintain the reputation every firm is guarding today.

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This series appears in:

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TIME
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PRINTERS' INK
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When writing Strathmore Paper Company please mention Purchasing



From bank statement
to Permanent Records

Profit by the eighty years' experience that gives PARSONS RECORD PAPERS distinctive appearance, ruggedness and durability that can't be matched. Made from cotton fibers, they have strength to withstand rough usage—then remain intact for ages. The surface is smooth to the pen, yet immune to erasures and thumbing. You pay no more for the extra quality of PARSONS RECORD PAPERS, so why not enjoy the benefits? Ask for sample book or test sheets.

Sample books of these grades can be obtained from your Printer, Lithographer, Parsons Merchant or direct from the mill.

PARSONS RECORD PAPERS... OLD HAMPDEN BOND · GOTHIC BOND
LACONIA BOND · SCOTCH LINEN LEDGER · PARSONS LINEN LEDGER
DEFENDUM LEDGER · MERCANTILE RECORD · PARSONS INDEX

Parsons BONDS LEDGERS INDEX

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STAR STAPLERS

The best way to fasten papers. Needed on every desk. Use economical standard size staples. Built to last. Guaranteed against defects.



Model S101 List Price $6.00

Purchasing Agents, Here's our offer:

. . . Write us a letter telling us where to send it, and we will send you one of the latest Model Star machines to try out. There's no obligation and the transaction won't cost you a cent!

Many other models to choose from. Circulars and prices on request.

STAR PAPER FASTENER CO., NORWALK, CONN. Dept. P

look materially different from the rest of the typing, then the erasing qualities are good.

A more complete test is to type, erase, and then observe the erased areas through a magnifying glass. If those areas look "fuzzy" then the fiber content of the paper does not yield a surface which is best for erasing.

The first of these tests shows what the paper does in the hands of one typist—the one who makes the test. The second indicates what is likely to happen with all typists.

The Second Sheet

The common test for the marking ability and the endurance of a sheet of carbon paper, is also a test of the abilities of second sheets to "take" carbon inks and to prolong the life of carbon papers. The only difference is, if testing the carbon then the test is made with a known value second sheet and an unknown carbon, while if testing the second sheet a carbon of known value is used.

In this test, the second sheet is laid upon a plain surface, the carbon is laid face down upon it, another sheet is laid upon the carbon to take the friction, graduated weights are so mounted that they bear on small areas of the top sheet but cannot move horizontally, and the three sheets are pulled beneath those weights. Observation is made of how heavy a weight is needed to cause the carbon to mark the second sheet to a satisfactory degree, and with a carbon of known value in use this is a test of the weight of a typists "touch" necessary to mark this sheet and therefore is an indication of the number of carbon copies which can be made with sheets of this type.

In a second test, the carbon is held in fixed position beneath the weights but the second sheet is pulled beneath them. Only narrow areas of the carbon can mark, therefore the carbon wears away and the marks become dimmer as the second sheet moves. This is an indication of the abilities of the second sheet to absorb the last bits of ink and get the ultimate life from the carbon.

Protection of the typewriter platen is important in a second sheet. If only one copy of each original is expected, a "mushy" second sheet which will absorb the shocks of the type strokes is good. Multiple copies need harder sheets which let the shocks go through.

Transparency is important if—as is the growing custom—it is anticipated that blue prints of the second sheet will be made rather than retyping when extra copies unexpectedly become necessary. Opacity is needed if both sides of the sheet are to be used for economy on long letters.

Pencil Surface

Papers may be tested for use with pencils, crayons, etc., by laying the sheets on flat surfaces, mounting various kinds of pencils so their points bear upon the papers under known weights and are not free to move horizontally, then pulling the sheets along beneath the pencils and observing the marks which are made.



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Back Them Up...

Take care of your Office Machines
so they can have more War Machines
...Underwood can help!

What does this add up to? Calling for Underwood Maintenance Service in time adds up to a heap of good sense . . . and helps your country. Today, every Underwood Sundstrand Adding-Figuring Machine is precious because it must be made to last longer. A Maintenance Agreement will do that and keep them in tip-top condition. And instruct your staff to call for Underwood Service when any one of your machines gives less than its usual efficient performance.

"A stitch in time saves nine"

Take a letter to all Executives, Miss Bell. "Your typewriters, because of the present emergency, have become more valuable than ever. I know your typists do their best to keep them at top efficiency by proper cleaning. But the best possible conservation measure is to take advantage of the Underwood Maintenance Agreement. This provides for *regular inspection* of your machines. It is, in effect, an insurance policy covering the efficient operation of your typewriters. Ask us for details."

"For want of a nail, the shoe was lost"



He's in the Army now! Better take good care of that Sundstrand Payroll Machine, honey! It takes Uncle Sam's approval to get you a new one. Remember this one thing. There is some one in the Underwood Maintenance Department always at the other end of the phone.

"Never put off 'til tomorrow . . ."

Supplies, too, belong in your Conservation program. Did you ever think of how important they are at a time like this? For instance, you want ribbons and carbon papers that give the clearest possible reproduction with longest possible wear. The answer is Underwood Elliott Fisher Supplies. Who else should you turn to for such supplies, but the maker of the machines themselves?

Underwood Elliott Fisher
Helps Speed the Nation's Victory!

Underwood Elliott Fisher Company
One Park Ave., N. Y. *Nationwide Service*

Invest in America! Buy Defense Bonds and Stamps





Some papers will take pencil marks and especially crayon marks more deeply than others, and therefore are less liable to smudging.

Endurance

Endurances of papers include resistance to tearing, to folding, to handling, and to color changing. For longest life in storage, lack of internal chemical changes also must be established, but this is a matter for the laboratory to test.

Resistance to tearing may be tested with the fingers, or common types of pendulum instruments may be used.

Good rag content bond papers can have ten times the endurance under repeat foldings and re-handlings that other types possess. The test here is to fold and re-fold, then examine the folds under the magnifying glass for signs of cracking.

Color changing, fading, etc., must be measured by long exposure to sunlight and comparisons with samples which have not been exposed, or else by the use of laboratory instruments.

Economies

Many economies can be affected by studying the uses of paper. A production machine shop was using bond paper for all forms, but found that only two form sheets—the parts stock cards and the standard operations list cards—were handled enough times so handling was a factor in their endurances. Lower grades were used for all other factory forms.

At least one third of letter heads can be "short" forms, from six to seven inches instead of eleven inches long. Lighter paper and smaller envelopes can be used; sixteen substance weight paper being as serviceable as twenty for most uses. Fifty-nine pound weight index cards instead of seventy-two pound standard cards, are just as satisfactory and durable, permit 30% more cards to be filed in the same space, and allow carbon copies to be made when typing them. Pica typewriter spacing permits the use of smaller forms. Color codes are still the most reliable and the simplest means of getting copies into the right departments, but most of them can be simplified.

In seeking advice on such matters the buyer has recourse to local supply houses and the engineering staffs of large paper manufacturers. No subject has received more detailed, useful or imaginative study than the economical and useful employment of paper. The results of these studies have been made simple, attractive and informative. They are available for the asking.



Carbon paper that curls is typists' enemy number one. It is responsible for exasperating time out from the actual business of typing, for ruffled tempers that cause mistakes. That's why . . .

It pays to give your typists DAWN OLD TOWN'S amazing new CurlPROOF CARBON

DAWN gets the job into the machine quicker . . . turns it out neater. Saves time. Saves temper. Saves mistakes. REASON: DAWN STAYS FLAT, never curls, is easy and clean to handle. Try this *speedy* carbon. For test samples write OLD TOWN RIBBON & CARBON CO., Inc., foremost makers of ribbons and carbons for every use. Address Dept. A. 6.

Ask your Office Supply Dealer . . .



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Every sheet of OLD TOWN carbon trade-marked and GRADE-marked. Know what you buy . . . get what you pay for.

STREAMLINING THE COST OF RECORD-KEEPING

By J. S. SEIDMAN, C.P.A.

Almost every business is guilty of using forms or assembling details or preparing reports that do not serve a real or vital purpose. Many also stand convicted of going through a lot of double and triple tracking in bookkeeping work because of a tremendous amount of unnecessary and continuous re-writing of the same information from one record to another. The adoption of simple short-cuts will mow down this great waste of time and effort—and streamline the cost of record-keeping.

These are not glib or fanciful statements. They are somber conclusions predicated upon a case study that the writer was invited to make for one of the Prentice-Hall, Inc., publications. The knocks, provocations and teachings of actual experience are, therefore, the auspices under which we here proceed to review some of the ailments and ointments.

Take the matter of useless forms and reports. Generally, they are an inheritance from special situations or some temporary need. The need may be over, but the form lingers on. An interesting test to apply to all "paper work", is to quietly eliminate a form or report from time to time, and see what happens. It should not be restored until someone yells for it and justifies the



. . . and wars always *have* ended . . . and scarcity always *has* been turned into abundance. So will normal, prosperous business return.

But now, here at Rising, as at other paper mills, much production time is devoted to emergency needs. This means less paper for business and slower deliveries. It also means double-quick time in our country's war effort. That is the way we believe you would have it.

In the meantime, consult your Rising merchant. He will help you meet your immediate paper requirements for printed advertising, records and general correspondence.

RISING PAPER COMPANY

Housatonic, Massachusetts

Rising Papers

Haven't had a cold since they put in these cups!



Guard yourself and your employees against the spread of common colds by providing clean Ajax Cups at your drinking fountains. They're an inexpensive way to avoid contagion.

Ajax Cups pull out of the dispenser, open, ready for use; fit naturally into the hand and hold just enough water for a cool, satisfying drink.

Address Dept. 5-P at plant nearest you.

LOGAN DRINKING CUP CO., *68 Prescott Street, Worcester, Mass.* • **PACIFIC COAST ENVELOPE CO.,** *416 Second Street, San Francisco, California* **U. S. ENVELOPE CO., Los Angeles Division,** *2828 East Twelfth Street, Los Angeles, California.*

Divisions of United States Envelope Company



Ajax Mobile Water Service takes water to employees at their machines; saves time, promotes health, improves morale. Send for information.



AJAX CUPS

Any drinking fountain can easily be equipped so that AJAX cups can be used

shouting. Like as not, it never will be missed. A large railroad company tried this out, and to its dismay and delight effected a wholesale elimination of forms and reports. So, also, an industrial company found that it could reduce elaborate reports to just a few key figures that its executives were really looking at.

However, it is arch conspirator No. 2, the re-writing nuisance, that is the prolific time and energy waster. The loss is not only in the re-writing, but, also, in the need for checking back each re-writing, since the possibility of error is otherwise ever present. Suppose, for example, a purchase is made and the bill is paid. These are perfectly simple transactions, but note the bookkeeping vagaries ordinarily involved. The bill is first recorded in a purchase book. It is then classified by product. It is then "posted" to the account of the vendor. On payment, a check is made. The payment is then recorded in the cash payment book. It is then posted to balance the account of the vendor.

In other words, we have here six distinct and separate writings of the basic fact of purchase and payment, and six possibilities for error. Yet, those alert to the problem have found the answer in the preparation of a single document —a combination check and voucher—in number of copies sufficient to serve all six purposes with the one stroke.

There is no limit to the extension of the principle involved. Take cash records. The popular practice, when a check is made, is to record the detail on the check stub. The same is done with deposits. The cash book showing all receipts and payments is then written up from the check stub. This entails a double writing of the same story. Is the duplication avoidable? Easily. Some companies do away with the cash book by an extension and columnarization of the check stub. Others do away with both the check stub and the cash book. This they do by preparing checks and deposit slips in duplicate. The duplicates are then so used as to serve the same purpose as the records supplanted.

Sales and accounts receivable records hold out real possibilities. In this field it ordinarily takes a quadruple play to retire the side. The play goes from sales bill to sales summary and classification, to customer's ledger account, to customer's end-of-the-month statement. Each time the base is tagged, there is a separate writing. Here, too, the mopping up process can be accomplished by making enough copies of the sales invoice so as to respectively serve for the four records without any further writing or ado. Actually, it can go way beyond these four records. Extra copies of bills can be used as shipping documents, as production and collection records, and for all sorts of analyses regarding salesmen's activities and compensation.

In this connection, using an extra copy of the invoice as the customer's ledger account has been considered awkward where customers make part payments. But that myth is successfully exploded by providing a few simple rulings on the

How Will the War Affect Your Supply of Typewriter Ribbons?



The recent Government restriction order has reduced the production of metal typewriter ribbon boxes and spools to 50% of the production figure of 1940. This will have an effect on many purchasing agents.

On priority orders of A-10 or better, the return of spools in order to obtain spool replacements will not be required. But it will help your supplier and manufacturer if you do return them with new orders.

Purchasing agents who do not have priority ratings must turn in used boxes and spools when new ribbons are purchased. Otherwise, your supplier may not be able to fill your order.

So please cooperate. Do not destroy metal boxes or spools after using them. Also, plan to make your ribbons last longer. Here are a few suggestions for your Stenographic Department.

To Conserve Typewriter Ribbons

1. Turn the ribbon after a week's usage. It will wear evenly and last longer.
2. Use the heaviest degree of inking consistent with legible impressions.
3. Be sure the ribbon feed mechanism is in proper adjustment. This insures even distribution of wear.
4. Keep your machine in good repair and clean the erasure dust daily.

REMEMBER: There is no substitute for quality carbon paper and typewriter ribbons. Good materials, properly used, will give better results and longer wear.

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Specify one of
ESLEECK
THIN PAPERS

Fidelity Onion Skin
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and we shall endeavor to give reasonable service, although the enormous demand, including large Government orders, also the increasing scarcity of essential raw materials make it very difficult to do so during the present emergency.

ESLEECK
Manufacturing Company
Turners Falls, Mass.

copy to permit of convenient recording of part payments.

Statements to customers at the end of the month have been the bane of the bookkeeper's existence. They consume an ungodly amount of time just when everything else is at the peak load. There are many ways of killing this cat. To begin with, statements need not—in fact, ought not—be sent every customer. Only those who want statements or who are not prompt payers, should get them. That wrinkle cut down the number of statements for one company by 80%. Using duplicate copies of invoices as the statement of charges for the month avoids re-writing, produces automatic accuracy between the statement and the bill, and makes all quiet on the end-of-the-month front.

Another end-of-the-month aggravator is the bank statement. Banks send depositors a statement of their account every month. Reconciling the bank statement and the company's books is no small job. One way out, is to get the statements at regular intervals during the month. The work will thus be smoothened out, while differences will be spotted more quickly. Or, if there are several bank accounts, the problem of the peak load can be overcome by staggering the monthly statements so that they come in from the different banks at different times of the month.

Payrolls have become a serious bookkeeping headache, particularly since all sorts of payroll information must be filed with government departments. Elaborate payroll records for individual employees are the order of the day. However, companies that pay their help by check have an excellent record-saving opportunity. Individual employee records can be dispensed with entirely. Instead, a duplicate copy of the check can take the honors. By filing the duplicate in envelopes kept for each employee and running off adding machine tapes when desired, the needed information, for whatever purpose, is obtainable.

Then there is a book called the journal, where each month entries are made for depreciation, bad debts, apportionment of expenses, inventories, etc., etc. Though these are monthly repetitive entries, differing only in amount, the usual thing is to write them out in full each time. A simple rearrangement of the form of the journal makes this unnecessary. By providing columns for each month, the basic entry need be written but once and only the figures recorded each month in the proper column.

The possibility of doing away with ledgers altogether has already been touched upon. Where they are maintained, they can be made to do much more work than is ordinarily true of them. For example, if a customer owes money both on open account and on note, the two are ordinarily kept in separate accounts and in different books. To find out what a customer owes in total, it is necessary to go to both sources. Inefficient and uncalled for! The whole

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FOR
SO LITTLE



The most durable L. L. Brown ledger, instead of ordinary paper, increases accounting costs only ¼ of 1%, yet guarantees 100% protection—utmost resistance to wear. Your printer will be glad to furnish you with L. L. Brown papers.

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GREYLOCK LINEN LEDGER
85% New Cotton Fibres
ESCORT LEDGER & MACHINE POSTING
50% New Cotton Fibres

*Permanent Grades

1849

story can be kept at one place, merely by providing columns in the ledger for open account and for notes. The same can be done to keep tabs on such items as consignments or memorandum shipments, or charges to customers for returnable containers.

If it is true that time is money, then there is much to be saved by speeding up the preparation of financial reports for the executives. It is surprising to see how many companies are thrown for a loss of days or weeks in this respect by overlooking almost obvious short-cuts. For example, by simply arranging the accounts in the general ledger in the same order as they appear on the financial statement, the drawing-off of the statement itself is considerably simplified. Also, normally, statements give comparative figures of the previous month or previous year. That usually means copying figures from the previous statement on to the current one. However, a "peg-board" arrangement whereby the previous statements are aligned with the current ones will give the comparative figures with no re-writing at all.

Only a few of the high spots have been touched, and then in very summary fashion. There is no end to the streamlining of record-keeping if we only put our minds to it. Inventorying and housecleaning of the bookkeeping and accounting work should be attended to at least once a year, just as is done with merchandising. The results will be astonishing.

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Greatest advance ever made in filing. Every folder tab always visible. Saves time and effort, reduces misfiling, cuts filing costs.

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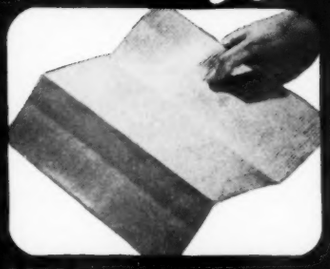
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THE TOWEL THAT LEAVES
No Fuzz!



IT'S
Texturized
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This new paper towel has longer fibres—absorbs more water—does it faster—and, leaves no disagreeable fuzz on the skin!

Ask your towel supplier for free samples of Straubel Texturized Towels!

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BETTER OFFICE PRACTICES CONSERVE RUBBER

The leak-proof gas tank on one big bomber requires over 1,200 pounds of rubber—enough to make over 7,000,000 No. 10 rubber bands.

Natural rubber, synthetic rubber, and now reclaimed rubber for use in office supplies are almost as extinct as the dodo bird. Natural rubber erasers, bands, cushions, mats, finger pads, stamps, type and a host of other things now in offices must be conserved, since natural rubber is not available and reclaimed rubber, if available, is less desirable.

Horder's Incorporated of Chicago, distributors of office supplies and paper, offer suggestions for conserving some of the rubber office supplies now in use and for stretching (literally and figuratively) the insignificant stocks in the trade. Mr. E. Y. Horder, President, says "These suggestions for rubber conservation are as important to business and the war economy as were our earlier suggestions for the conservation of business paper. Follow these suggestions so your office will run more smoothly and economically and help conserve rubber for war production."

1. Reduce mistakes and the necessity for erasures.
2. Let typists "X" out typographical errors.
3. Tie eraser to desk with string to prevent loss.
4. Wash dirty erasers and other rub-

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IT is particularly important NOW to buy a uniform, dependable, long-wearing carbon to save paper, chemicals, labor, time, money.

Less expensive in the long run, Silk Gauze is a *BETTER* carbon. Note these outstanding advantages:

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2. *"Quick Extraction" feature with opposite corners of the half inch longer carbon sheets clipped off, makes removing sheets easy, gives longer wear.*
3. *Each sheet* branded by name.
4. *Each sheet branded by weight and writing strength, indicating what it is for—what it will do.*
5. *All carbon paper requirements covered. Made in three weights—five writing strengths in each weight.*
6. *Made of tough, resilient paper—a guarantee against flaking—an assurance of long wear.*
7. *Widely adaptable. Produces beautiful, crisp, clear carbon copies on any kind of typewriter.*

FOR A REAL MONEY'S WORTH IN ECONOMY, DEPENDABILITY AND PERFORMANCE, ASK YOUR DEALER FOR SILK GAUZE, OR CONTACT THE COLUMBIA OFFICE NEAREST YOU!

COLUMBIA
RIBBON & CARBON MANUFACTURING CO., INC.

Main Office and Factory:
GLEN COVE, L. I. • NEW YORK

Branches
58-64 West 40th Street, New York City
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327 South LaSalle Street, Chicago, Ill.
155 West Congress Street, Detroit, Mich.
227 East Michigan Street, Milwaukee, Wis.
200 Plymouth Building, Minneapolis, Minn.
107 Union Street, Nashvile, Tenn.
1508 Fox Building, Philadelphia, Penna.
208 Standard Life Building, Pittsburgh, Penna.
205 East 6th Street, Cincinnati, Ohio
(Harris-Moers Company)

—*Also*—

London England
Sydney Australia

ber goods with ammonia or mild soap and water to clean and prolong life.

5. Use Backing Sheets to cover worn typewriter platens.

6. Buy more pencils without rubber tips.

7. Save pencil stubs having any usable eraser.

8. Use adhesives other than rubber cement.

This war moves on rubber and may require more than the total available supply of natural, synthetic, and reclaimed rubber.

✓ ✓ ✓

MANUFACTURER PROVIDES INFORMATION ON EXTENDING PRIORITIES

A unique and valuable service to distributors is provided by the National Blank Book Co. of Holyoke, Mass., in the Special Priorities Issue of its house organ, "The National." Starting with the premise that today's potential market is in the field of the war industries, the bulk of the issue is devoted to a detailed explanation of "How you extend preference ratings to us with your orders." The discussion cover four classes of orders: (1) Army and Navy orders on Form PD-3A, (2) Individual Preference Rating Certificate PD-1A, (3) P-100 endorsed purchase orders, and (4) Blanket ratings or P orders. The forms involved in each class are shown, detailed procedure is indicated, and proper wording of endorsements is given.

SPEED-UP FOR THE BUSINESS FRONT

Many and perhaps all salesmen in the stationery and office supply field may be known as "Time Wardens" for the duration of the war. In a strong effort to focus attention on the need for greater efficiency of office routine on the business front, the Oxford Filing Supply Co., Brooklyn, has devised a program intended to dramatize the important educational work of office supply salesmen. Around its so-called "Time Warden" program, the Oxford Company, well-known manufacturers of office filing supplies, plans a complete program of wartime advertising and merchandising.

The program goes far beyond any promotion of Oxford products. It is three-fold. It is, first, a patriotic drive to help win the war by speeding office paper work and by conserving office supplies. Second, it is a plan for arousing dealers and salesmen to the vital contribution they can make to this important objective. Third, the theme and name of the campaign are designed to catch the attention of key executives and make certain that the message of improved business is heard in the proper quarters.

In many fields there is easy acceptance of the fact that salesmen have no real place in a war economy. Oxford disagrees. Advertising Manager S. A. Wood points to the fact that war production starts with a blueprint; before the first shearing of metal and hammering of rivets occurs, it is all paper-work—a long trail of letters, schedules, purchases, costs, priorities, contracts and subcontracts—paper-work that places a tremendous strain on office equipment, filing systems and personnel. The result—factory production is paced, far more than is realized, by preliminary and accompanying paper-work.

Leading, long-established concerns buy the best in office methods and equipment. But office efficiency is often an unknown quantity among thousands of smaller firms which overnight have been catapulted by war contracts into the class enjoying a business volume of a half million and better. Recent surveys, according to Mr. Wood, indicate a keen desire on the part of business men to speed up their paper work and office routine. Consequently the opportunity is tremendous for the nation's office supply salesmen to be of real war service. Every time- and labor-saving device placed in the office of a war industry today is a definite contribution toward ultimate victory. It is a part of the coordinated war effort.

As a part of the campaign in the metropolitan area, Oxford will supply stationers' salesmen with large buttons gratis bearing the name "Time Warden." Advertising will help pave the way for the wearers by announcing that Time Wardens are skilled in quick and efficient methods of handling office routine and in counseling conservation of paper and other supplies. Window displays will be furnished free.

NO Purchasing Problems when you specify BOSTONS

Never are there, never will there be purchasing problems when you write "Boston Pencil Sharpeners" on your order list. Production is speeded up, must be speeded up even more. This particular model is portable; adaptable to any and all conditions. It works just as efficiently as all Bostons are built to work wherever you place its black and chrome base. So, to get maximum results with no "kick" from anyone in your organization—write BOSTON large and clear on your order.

C. Howard Hunt Pen Co., Camden, N. J.



MODEL L

BOSTON PENCIL SHARPENERS

PURCHASING

PRINTS THE PARTICULARS FOR PARTICULAR PURCHASING AGENTS.

—and the subscription price is $3.00 yearly



PURCHASING
205 East 42nd Street
New York, N. Y.

Please add the following to your subscription list for one year and send invoice for $3.00 (Canadian $4.00) as checked below.

☐ Invoice company ☐ Invoice me

Name .....
Title .....
Company .....
Address .....
City .....
State .....

THOUGHTFUL PLANNING IS A SERVICE TO THE NATION

You don't have to cramp your style!

BEFORE PRINTING JOBS are designed mutual planning can save time, money, labor—and PAPER. Fancy sizes in printing jobs MAY call for special and costly sizes in paper—but if layout man and printer talk it over FIRST, then it may easily be practical to make the job unusual, different, completely individual... yet have STANDARD PAPER SIZES do the work. The layout man knows what he wants—the printer knows how to do it efficiently and economically. Cooperate!



For more than 10 years International Paper has advised buyers of printing to "Consult your Printer"

INTERNATIONAL
PAPER COMPANY
220 EAST 42nd ST., NEW YORK, N. Y. • BOSTON • CHICAGO • CLEVELAND
PAPERS *for* PRINTING *and* CONVERTING

★ ★ BUY MORE WAR BONDS ★ ★

When writing International Paper Company please mention Purchasing

Among the ASSOCIATIONS

NORTHWEST PACIFIC BUYERS' CONFERENCE

The seventh annual Northwest Pacific Purchasing Agents' Conference was held at the Hotel Edmond Meany, Seattle, April 25th and 26th. In addition to the members of participating associations—Washington, Oregon and British Columbia—the conference was attended by representatives from San Francisco, Los Angeles and Salt Lake City, who were in Seattle for the meeting of District Council No. 1, and by the Public Buyers of the Pacific Northwest, who met in Seattle on the preceding day.

Theme of the conference was: "Purchasing in a War Economy under Government Regulations." Speakers at the Saturday business session were:

W. F. Gorrell of Munnell & Sherrill Co., Portland, "Methods of Selecting Efficient Purchasing Personnel." Discussion led by A. E. Darlington of Northern Electric Co., Vancouver.

Kenneth A. Knudson of Everett Pulp & Paper Co., Everett, "Keeping Up-to-Date in Today's War Economy." Discussion led by George P. Griffis of the Oregonian Publishing Co., Portland.

Stanley F. Cowdell of Grinnell Company of the Pacific, "Operating Problems Under Priorities and Allocations." Discussion led by William F. Schultz of Superior Portland Cement, Inc.

William N. McPhee of Kelly Douglas & Co., Ltd., Vancouver, "Price Control in Canada—How It is Working." Discussion led by J. R. Gibson of Peerless Pacific Co., Portland.

William Ker of Gordon & Belyea, Ltd., Vancouver, "How Can a Purchasing Agent Best Assist the War Effort?" Discussion led by Grover C. Greimes of Puget Sound Power & Light Co.

Roy C. Hull of E. I. du Pont de Nemours & Co., Dupont, "Substitutes—New Methods and Materials." Discussion led by Watt Fallis of Kenworth Motor Truck Corp.

Lieutenant A. M. Prothro, contract, claims and priority officer of the Quartermaster Section, Seattle General Depot, "Purchasing for Army Requirements in the Pacific Northwest."

Lieutenant T. A. Long, Supply Corps, U. S. Navy, purchasing officer of the Supply Department, Puget Sound Navy Yard, Bremerton, "The Problems of Navy Procurement."

At the annual banquet on Saturday evening, Karl L. Bates of Seattle presided as toastmaster, introducing as the principal speaker Attorney Stephen F. Chadwick, past National Commander of the American Legion, whose topic was, "Our Day and Times."

The entertainment program included a shopping tour for the ladies on Saturday afternoon, followed by tea in the Gold Room of the Meany Hotel; the annual golf tournament at the Inglewood Golf & Country Club; and a sightseeing tour of the city and over the Lake Washington Floating Bridge.

The committee in charge included Frank A. Carson, *General Chairman;* George P. Locker, *Business Program;* Walter Dykema, *Ladies' Entertainment;* Dean Ireland, *Hotels;* Frank A. Smith, *Registration and Reception;* Charles V. Tinker, *Transportation;* M. F. McClane, *Banquet;* Harry Miller, *Entertainment;* and Carl C. Mueller, *Golf.*

ERLICHER ELECTED PRESIDENT OF EASTERN NEW YORK ASSOCIATION

Harry L. Erlicher, Vice President in Charge of Purchases for the General Electric Company, Schenectady, has been elected President of the Purchasing Agents Association of Eastern New York for 1942-1943. Other new officers are:

Vice President, Richard H. Van Laer of Hudson Valley Paper Co., Albany.

Secretary, W. Duncan MacFarlane of The Woodward Co., Albany.

Treasurer, A. J. Tailby of A. P. W. Paper Co., Albany.

National Director, G. L. Fuller of New York Power & Light Co., Albany.

Executive Committee, James Elder of Cluett Peabody & Co., F. P. Jannott of Simmons Machine Tool Co., and L. F. Van Kleeck of Rensselaer Valve Co., Troy.

The nominating committee consisted of George L. Brown of F. C. Huyck & Sons, C. P. Spuck of Sager-Spuck Supply Co., and Amos K. Munson of United Traction Co.

The April meeting of the Association was held at the Mohawk Country Club on the 16th. L. F. Van Kleeck, Purchasing Agent and Traffic Manager for the Rensselaer Valve Co., spoke on "Purchasing Transportation."

INDUSTRIAL EXHIBITION AT LOS ANGELES

The 15th annual Industrial Exposition sponsored by the Purchasing Agents Association of Los Angeles was held at the Elks Club on the afternoon and evening of April 16th. This year's exhibit featured displays of alternate and substitute products and processes. Wayne R. Allen, President of the Association, presided at the banquet session, introducing as guest speakers: Harvey A. Anderson, Chief of the Conservation and Substitution Branch, Bureau of Industrial Conservation, WPB, who spoke on "Substitution," and Carleton B. Tibbetts, General Manager of the Los Angeles Steel Casting Company and President of the Chamber of Commerce, who spoke on "This Industry of Ours."

Arthur Baker was General Chairman of the Exposition Committee, assisted by J. C. Walker of Turco Products, Inc., *Vice Chairman;* A. B. Wimpey of Great Western Cordage, Inc., *Exhibit Chairman;* E. H. Metcalfe of Huntington Land & Improvement Co., *Products Research Chairman;* Lou Davis of the Los Angeles *Times, Publicity Chairman;* Lyle Moberly of Adohr Milk Farms, *Registration Chairman;* Ed Conrad of the Standard Oil Company of California, Henry J. Kiefer of Owens Illinois Pacific Coast Co., W. Boyd Moon of The B. F. Goodrich Co., and Wayne R. Allen of Los Angeles County.

NEW OFFICERS AT ROCHESTER

The following officers have been chosen for 1942-1943 by the Rochester Purchasing Agents Association:

President, Herbert B. Collins of Eastman Kodak Co., Camera Works.

First Vice President, Charles E. Spieler of Delco Appliance Works, General Motors Corp.

Second Vice President, William A. Charity of Genesee Brewing Co.

Third Vice President, Paul L. Burroughs of Rochester General Hospital.

Secretary-Treasurer, John A. Harbison of Eastman Kodak Co., Hawk-Eye Works.

Directors, Wilson P. Wight of Bausch & Lomb Optical Co., David C. Borlem of Yawman & Erbe Co., Raymond C. Sauer of Will Corporation, Homer Braunschweig of Rochester Envelope Co., Irving Devendorf of Hickok Mfg. Co., and J. Raymond Levis of John A. Levis & Son.

MILWAUKEE BUYERS HEAR ABOUT COAL

At the April 14th meeting of the Milwaukee Purchasing Agents Association, a sound film, "The Story of Champion Coal," showing underground mining operations and transportation, was shown, with explanatory comments by John R. Warner, Vice President of the Milwaukee-Western Fuel Co.

CHICAGO MEETING

The April meeting of the Chicago Purchasing Agents Association was held at the Hotel Sherman on the 9th. Speaker of the evening was Lee Ragsdale, sales manager and public relations expert of the Western Union Telegraph Company, whose topic was "Telegraphically Speaking." A technicolor sound film, "Mr. Craig Has the Floor," was shown



It's WISSCO wire...from soup to bullets

If you are producing anything for the equipment or supply of our armed forces, and Wissco wire can help, send us your specifications and priority rating. Our thousands of men, and seven plants are sweating day and night with only one goal—to do everything we can to help win the war.

Wickwire Spencer men know that the wire being produced today is going into *doubly* important service: beads for military tires, an infinite variety of precision springs, wire rope, metal conveyor belts on which are processed everything from canned rations to bullets.

From ore pile, to blast furnaces, to open hearth, to the finished wire, quality and uniformity are rigidly guarded as we strive to *beat the promise*. Wickwire Spencer Steel Company, 500 Fifth Avenue, New York; Buffalo, Chicago, Detroit, Philadelphia, San Francisco, Worcester.

EVERYTHING IN WIRE. High and Low Carbon Wire—Round and Flat Wire—Wire for Springs, for Wire Rope, for use in scores of industries, in a variety of sizes, tempers, grades and finishes.



WISSCO RESEARCH has produced many basic improvements in wire metallurgy, and in wire uniformity and quality. Wissco know-how plus controlled manufacture, every step of the way, meets your specifications.

SEND YOUR WIRE QUESTIONS TO WICKWIRE SPENCER

WISSCO WIRE

BY WICKWIRE SPENCER

WISSCO PRODUCTS

When writing Wickwire Spencer Steel Company please mention Purchasing

through the courtesy of the Johns-Manville Sales Corp. It depicted the manufacture and application of asphalt tile flooring. The annual election of the Board of Governors will be held at the May meeting.

NEW ENGLAND ASSOCIATION

The New England Purchasing Agents Association met at Schrafft's in Boston on April 13th. Hon. Robert T. Bushness, Attorney General of the Commonwealth of Massachusetts, was the guest speaker. Commodity reports were given by Homer P. Griffin of Dennison Mfg. Co. and members of his committee. The dinner meeting was preceded by an afternoon discussion period of the newly formed Food Committee.

MARKLE HEADS CLEVELAND BUYERS

The annual meeting of the Cleveland Purchasing Agents Association was held at the Hotel Cleveland, April 16th. C. J. Phillips of the Corning Glass Company presented a motion picture film on "Industrial Glass" and lectured on new developments in glass, demonstrating a variety of the amazing products now made of this material. The election of officers for the coming year named the following slate:

President, Harry B. Markle of Harris-Seybold-Potter Co.

First Vice President, W. F. Avery of the Elwell-Parker Electric Co.

Second Vice President, J. M. Stadter of the Glidden Co.

Secretary-Treasurer, J. R. Stevens of Harshaw Chemical Co.

National Director, Paul T. Skove of Perfection Stove Co.

Board of Trustees, R. E. Gray of Kaynee Co., H. W. Allen of Elliott Electric Co., C. L. Lesmer of Telling-Belle Vernon Co., and D. T. Hudson of American Steel & Wire Co.

ELMIRA BUYERS ELECT WURTH

Fred H. Wurth of the Eclipse Machine Division, Bendix Aviation Corp., was elected President of the Elmira Purchasing Agents Association at the annual meeting and ladies' night, held April 23rd at the Baron Steuben Hotel, Corning, N. Y. He succeeds Sydney W. Jones of the Shepard Niles Crane & Hoist Corp. Other officers elected were:

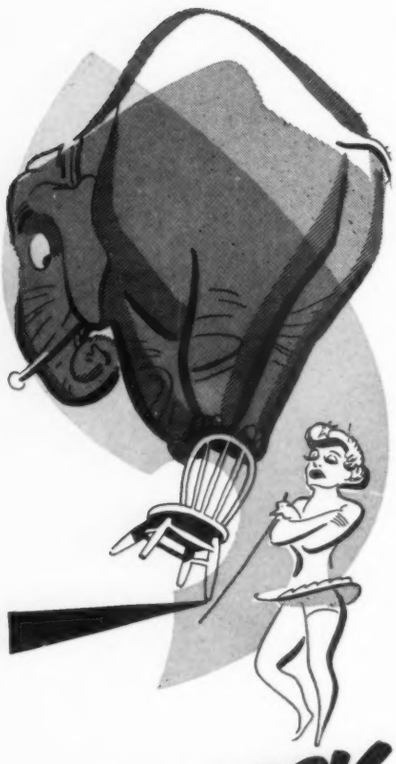
First Vice President, John S. Netth of Hardinge Bros., Inc.

Second Vice President, Leon R. Matson of Corning Glass Works.

Treasurer, Francis R. Baker of American LaFrance & Foamite Corp.

Secretary, Edwin A. Ferguson of Le-Valley McLeod Kincaid Co.

Directors, Reginald C. S. Potter of Chemung Foundry Corp., Vincent S. Costello of Trayer Products, Inc., L. A. Clark of Troy Engine & Machine Co., Fred W. Gierspeck of Gierston Tool Co., and Sydney W. Jones.



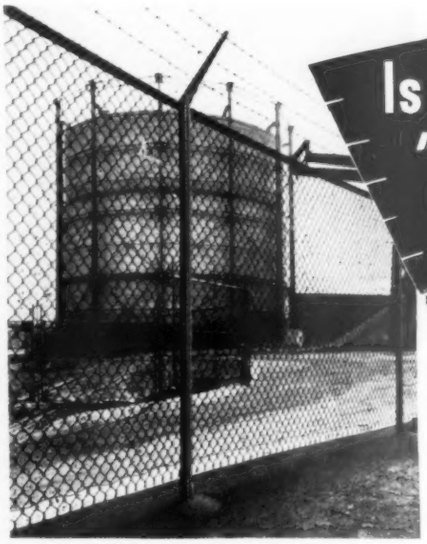
IT'S EASY

WHEN YOU KNOW HOW —JUST LIKE GETTING LONGER MOTOR LIFE WITH WESTINGHOUSE SEALED SLEEVE BEARING MOTORS —AND THAT'S JUST ONE WAY THEY'RE YEARS AHEAD!

J-21238

WESTINGHOUSE

SEE PAGE 196 AND PAGE 197



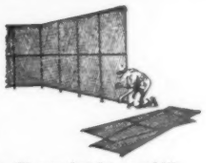
Is your property a "PUSH OVER" for Saboteurs?

A Stewart Non-Climbable, Crashproof Chain Link Wire Fence is the best insurance against unwarranted entry you can buy. Unfenced property invites trouble, and in times like these you just can't afford to take chances. Government officials say, "Fence is the industrial property's first Line of Defense." Send for Catalog I-41 which gives complete details on Stewart Industrial Fence as well as Window Guards, Wire Mesh Partitions, Steel Folding Gates, Machinery Guards and other accessories in iron and wire for industrial property.

Stewart maintains sales and erection offices in all principal cities.

WIRE MESH PARTITIONS

Provide economical enclosures. Allow maximum light and ventilation. Stewart wire mesh partitions are sectional and available to fit any height or width. Complete information will be sent on request.



Stewart IRON and WIRE FENCES

THE STEWART IRON WORKS CO., Inc.
961 Stewart Block
CINCINNATI, OHIO

What's the difference?

The horseshoe



. . . a symbol of luck left to chance

The Gaylord seal



. . . a mark of PLANNED *reliability!*

- Corrugated and Solid Fibre Shipping Containers
- Folding and Paraffined Cartons
- Kraft Paper Bags and Sacks
- Kraft Wrapping Paper and Specialties

GAYLORD CONTAINER CORPORATION

General Offices: SAINT LOUIS

New York · Chicago · San Francisco · Atlanta · New Orleans · Jersey City · Seattle · Indianapolis
Houston · Los Angeles · Oakland · Minneapolis · Dallas · Jacksonville · Columbus · Fort Worth
Detroit · Tampa · Cincinnati · Des Moines · Oklahoma City · Portland · Greenville · San Antonio
Memphis · Kansas City · Milwaukee · Bogalusa · Weslaco · Greensboro

When writing Gaylord Container Corporation please mention Purchasing



FOR FASTER . . . BETTER . . . LOWER COST
PACKING and SHIPPING—
GENERAL BOX
WIRE-BOUNDS . . . ALL-BOUNDS . . . CRATES
. . . NAILED BOXES . . . SPECIAL CONTAINERS
13 STRATEGICALLY LOCATED PLANTS
General Offices: Chicago, Illinois • *District Offices and Plants:* Brooklyn, Cincinnati, Detroit, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, East St. Louis, Winchendon • Continental Box Company, Inc.: Dallas, Houston

GENERAL BOX COMPANY
48 W. Illinois St., Chicago, Illinois
☐ Have a General Box engineer call
☐ Send copy of the booklet showing how General Box containers are successfully solving today's packing and shipping problems for manufacturers of all types of products.

Name .....
Address .....
City ..... State .....

SAN FRANCISCO PROGRAMS

Hon. Culbert L. Olson, Governor of the State of California, was guest speaker at the April dinner meeting of the Northern California Association of Purchasing Agents, held at the Hotel Claremont on the 16th. Chairman for the evening was Elliot M. Epsteen, Association Counsel. The Governor spoke on "War and California."

San Francisco luncheon meeting programs included a talk on "The Necessity of Subcontracting of War Materials," by Col. Frank M. Smith, Manager of the Contract Distribution Branch, WPB, at San Francisco, assisted by R. W. Hawksley, manager of the Division's permanent exhibit at the Hotel Whitcomb; "Washington, D. C., and War," by Prof. Royal A. Roberts of the College of Commerce, University of California; and "Making Magnesium from Sea Water," by Russell L. Curtis, General Manager of the Great Western Division, Dow Chemical Co.

An illustrated talk on "The Evolution of the Locomotive" was presented by representatives of the Southern Pacific Company at a luncheon meeting in Oakland on April 7th.

* * *

PORTLAND MEETINGS

Speakers at the April meetings of the Oregon Purchasing Agents Association included Carl Cadwell of the Oregon State Rationing Board, who discussed the rationing program, and Claude A. Seranous of the Loggers and Contractors Machinery Co., who spoke on "Salvage."



DARNELL
CASTERS & WHEELS
for more and better material handling at lowest possible cost
Darnell Corp., Ltd.
LONG BEACH, CALIFORNIA
36 N. CLINTON ST., CHICAGO
60 WALKER ST., NEW YORK CITY

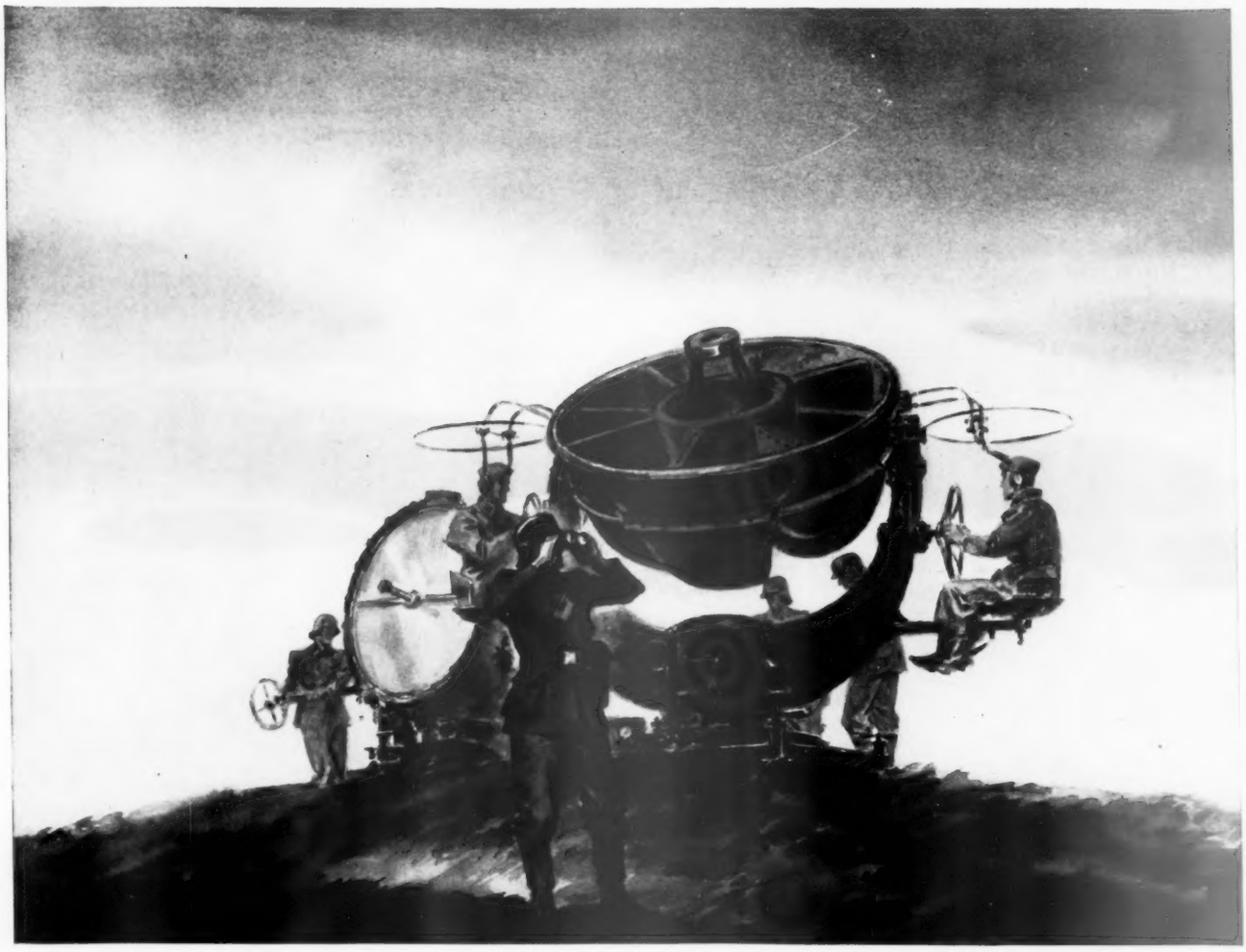
FORMULA FOR FASTER METAL CUTTING



On any metal, any job, STAR Blades cut faster. And blade for blade, the man who has the fact-packed STAR booklet "Metal Cutting" gets the work out still more quickly. This 20-page illustrated booklet of helpful hints is free—just like the *extra* cutting qualities you get in STAR Blades—hand and power, tungsten, "Moly" and high speed steel. Ask for STAR Blades always. Write for your free copies of "Metal Cutting" now.

CLEMSON BROS., INC.
MIDDLETOWN, NEW YORK

2429



My, what big ears you have · · · Herr Hitler

YES, big ears to hear things not meant for them. And big eyes looking for things they should not see—*just yet.*

You, Adolph, would be very much interested in some of the things we're developing for you. American resourcefulness, ingenuity and the determination to win are now at work. And the great plastics industry is performing miracles in the battle against time and production obstacles.

Richardson Plasticians, for example, are doing things that "can't be done" —producing better products which save other critical materials for other essential jobs—helping numerous producers increase their output per machine-hour.

Soon, Herr Hitler, you'll know just what we've been doing and how fast we've been doing it.

War Products Producers Please Note:

If you have a problem which laminated or molded plastics might solve, write us about it. We'll do our best to give you the answer quickly.

The Richardson Company, Melrose Park, Ill.; Lockland, Ohio; New Brunswick, N. J.; Indianapolis, Ind. Sales Offices: 75 West St., New York City; G. M. Building, Detroit.

A few of the ways in which Insurok and the Richardson Plasticians' experience are now serving:

1. Increasing output per machine-hour
2. Shortening time from blueprint to production
3. Facilitating sub-contracting
4. ✓ Saving other critical materials for other important jobs
5. Providing greater latitude for designers
6. Doing things that "can't be done"
7. Aiding in improved machine and product performance

INSUROK

When writing The Richardson Company please mention Purchasing



TUFFERNELL

IS THE

RIGHT WORD FOR THE

RADIO-FREQUENCY

TESTED INSULATION IN

WESTINGHOUSE

CS MOTORS

—IT'S JUST ONE OF

THE FEATURES THAT

KEEP 'EM

YEARS

AHEAD!

J-21239

WESTINGHOUSE

SEE PAGE 196
AND PAGE 197

NEW OFFICERS AT SEATTLE

Officers for 1942-1943 have been elected by the Washington Association of Purchasing Agents as follows:

President, M. F. McClane of Washington Co-Op Egg & Poultry Association, Seattle.

First Vice President, C. V. Tinker of Wm. O. McKay Co., Seattle.

Second Vice President, D. P. Brewer of Trumbull Electric Mfg. Co., Seattle.

National Director, Herbert H. Clarke of Wheeler Osgood Sales Corp., Tacoma.

Secretary, G. S. Drury of Northwest Lead Co., Seattle.

Treasurer, Harry H. Miller of Lake Union Dry Docks & Machine Works, Seattle.

Trustees, Guy Frederick of I. F. Laucks, Inc., Seattle; Carroll G. Holloway of Isaacson Iron Works, Seattle; Kenneth A. Knudson of Everett Pulp & Paper Co., Everett; William F. Schultz of Superior Portland Cement, Inc., Seattle.

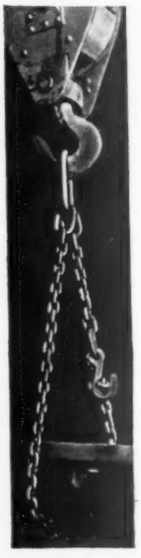
Principal speaker at the meeting of April 9th was Joseph Demmery, Professor of Business Fluctuations and Real Estate, University of Washington, who discussed "Business and the War Economy." Past President C. R. Bean led a discussion of priorities and allocations.

BIRMINGHAM MEETINGS

April meeting programs of the Birmingham Purchasing Agents Association included a talk by Cecil Matthews, Vice President of the Matthews Electric Sup-

Know the SAFE CARRYING CAPACITIES OF YOUR CHAINS

Taylor Load Charts give chain users full information on safe working loads. The safe working load for a chain is the "4-to-1" factor. Or in plain everyday language, *a load not heavier than one fourth the average breaking strength of that chain.* Consult the Taylor Charts for the figures.



Taylor-Made SLING CHAINS

owe their superiority to the selection of the toughest materials — to T-M Design, stress-free Weld, and Rugged Construction, assuring money-saving durability and economy for every load.

Note the inside surface bulges in *both sides* of each link. Extra metal adds extra strength. Close-hitched links reduce bending around corners.

Send for Taylor Charts and literature.

Est. 1873

S. G. TAYLOR CHAIN CO.
HAMMOND INDIANA

Keep 'Em Rolling VICTORY with DEFENSE Bonds



BOND 36-A CASTER. Basically different in design, this caster combines easy swiveling with long service. The "reason why" lies in the arrangement of its ball races and its use of durable Bond Caster metal. Pressure lubricated throughout.



BOND 40-A CASTER. The preferred light-weight caster for heavy duty. Sturdy, all steel construction reduces caster breakage . . . cracking . . . or excessive wear even under peak loads. Swivels with frictionless ease. Pressure lubricated throughout.

Bond specializes in *built-for-the-job* industrial truck casters! Send for free Bond data book now.

BOND FOUNDRY & MACHINE CO., MANHEIM, PA.

Bond REG. U.S. PAT. OFF.
TRUCK CASTERS

VALVES FOR VICTORY



Fig. 241
A sturdy, low-pressure (125-pound) Iron Body, Bronze Mounted, Flanged End Globe Valve that definitely meets today's industrial requirements of longer service, easy operation, quick repair, minimum maintenance. Has outside screw stem, bolted flanged yoke, regrindable, renewable bronze seat and disc; and is obtainable in sizes from 2″ to 12″. One of the many Powell Valves playing an important part in the "Battle for Victory."

There's many a valve on a submarine, a cruiser, a battleship, or a freighter. There's many a valve in a powder plant, a refinery or a power plant. Wherever War Production is in full blast there are valves, and wherever new processes are being used which involve new treatment of the liquids and gases of Industry, new valve installations are being designed and built to handle them.

Twenty-four hours a day, seven days a week, Powell Engineers, Designers and Shopmen are devoting themselves to this task. Behind them is a century of experience, the skill which comes with it and a research engineering laboratory full of up-to-the-minute equipment. The builders of America's ships, refineries and arsenals will not forget Powell's contribution of Valves for Victory.

The Wm. Powell Company
Cincinnati, Ohio

POWELL VALVES

When writing The Wm. Powell Company please mention Purchasing

ply Co., on the industrial supply situation and restrictions on domestic appliances, and a motion picture showing the production of planes, ships, tanks and guns, exhibited through courtesy of the Allis-Chalmers Co.

PRIORITIES MEETING AT PROVIDENCE

J. W. Peters, Head Priorities Specialist, Materials Branch, WPB, of Washington, addressed the Rhode Island Purchasing Agents Association at the April dinner meeting, held at the Narragansett Hotel, Providence, on the 27th. The talk was followed by an informative period of questions and answers covering specific problems of the buyers.

SANGER IS NEW PRESIDENT OF WESTERN MASS. BUYERS

A. R. Sanger of the Brooks Bank Note Company was elected President of the Western Massachusetts Association of Purchasing Agents at the annual meeting, held at the Kimball Hotel, Springfield, April 9th. He succeeds Robert M. Price of the Hartford Ordnance District, formerly of the Package Machinery Co. Other officers elected were:

Vice President, Raoul A. Charpentier of the Storms Drop Forging Co.

Secretary, A. H. Lobski of the Foster Machine Tool Co.

Treasurer, E. W. Whitehead of the Stacy Machine Tool Co.

Guest speaker at the meeting was Rex Stout, author of popular detective stories.



Release the UNUSED CAPACITY

Your men are ready and willing! Let them release unused capacity through the right file—Delta! Repeated tests show that Delta does on the average 25% or more work, proved by actual filings removed in the same time and with the same effort. You can easily see this for yourself in your own shop—simply by noting the long curling chips "shaved" by Delta. Yes, it's Delta for defense — from your distributor.

DELTA FILE WORKS
Philadelphia, Pa.

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DELTA FILES

Designed to Out-Perform and Outlast all Others

Fairbanks Hand Trucks will take the most brutal punishment without damage. That's because the wooden frame has heavy steel armor on front and back. There are no weakening mortises as steel crossbars are set flush into top of frame.

Fairbanks

Hand Trucks are made with handles and side rail in *one piece*, consequently the handles can't work loose. If nose iron gets worn, it can be replaced by removing a few bolts.

See our big line in Catalog No. 51. It's yours for the asking.



THE FAIRBANKS COMPANY
401 Lafayette St., New York, N. Y.
Boston, Mass., Pittsburgh, Pa.
Factories:
Binghamton, N. Y., Rome, Ga.

1/2 FORMER TIME with DoAll BAND SAWS

These 8" diam. Cutters for a Wood Shaper were made at Hodges Tool & Mfg. Company.



This Cutter from 7/8" steel was formerly cut on a miller with 3 cuts per tooth in 6 hours. With a DoAll Saw, the job took only 29 minutes.



Cutter made from 1/2" tool steel, formerly required 4 1/2 hours on the miller. Was cut with a DoAll Saw in 21 minutes.

This is only one of many case records showing unprecedented savings of time and material when using DoAll Band Saws—the saws that you need today to push forward your share of the huge national production job camping on the doorstep.

EVERY APPROVED WPB SIZE

DoAll Band Saws come in 42 tempers, pitches and sizes, to cut everything from hardest high carbon steel to soft brass. Each metal box contains a 100-ft. coil, with size and style saw plainly marked.



Pat. No. 2,255,577 Design Pat. No. 127,313 Other Patents Pending

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Associated with Continental Machines, Inc.
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Here's "ALL-OUT" Protection for Defense Production



ANCHOR FENCE shuts out arsonists and saboteurs — regulates incoming and internal traffic

WITH spies and arsonists on the alert to sabotage defense production, it's time to protect your plant, equipment and personnel with a "wall of steel." That means an Anchor Fence *around* your plant—and special Anchor enclosures *within* your plant to keep unauthorized employees and visitors away from power stations, transformers, laboratories, chemical and material stocks, fuel supplies and other vital points.

Anchor Fences can be quickly erected in any soil, in any weather, even when the ground is frozen. The exclusive, patented, driven "Anchors" hold the fence erect and in line, resist terrific force, yet can be moved without loss in case of plant expansion.

Send for an Anchor Engineer. Get the benefit of Anchor's 50 years of industrial fencing experience. Write now for Industrial Fence Catalog—and name of nearest Anchor Fence Engineer. Anchor Post Fence Co., 6615 Eastern Avenue, Baltimore, Maryland.

1892-1942 Fifty Years of Service

YOUR BEST DEFENSE IS AN **ANCHOR FENCE**

NATION-WIDE SALES AND ERECTING SERVICE

THE STORY OF THE MISSING FASTENER

■ Slowly the massive hangar doors rolled back and into the early morning mists trundled a gleaming airship of terrific proportions . . . the world's largest bombing plane readied for its final trial flight. Seven times before, this tense moment had occurred in utmost secrecy, but today the field was crowded with military officials, designers, research engineers and brass hats.

In a roped-off area a mechanic stood with other workmen, he heard the four giant motors "rev-up"; saw the "all clear" signal flash from the



. . . not this kind

tower. All four motors thundered and the ship rolled down the runway and into the air . . . then he started to remember. The left landing gear . . . he had re-assembled it yesterday . . . that bolt that fit so snugly . . . had he put it in after he was called away? Oh! sure, Joe inspected the job . . . but did he notice?

Right then, nearly three years of intensive aircraft design and construction, an experiment costing over $3,000,000 and the pride and hopes of countless men depended . . . not on correct design, accurate construction or safety factors . . . but on the absence or presence of a *single bolt.*

This story is fictional to illustrate the supreme importance and necessity of nuts, bolts and fastenings to aviation and every industry. No other means of fastening will do all of the jobs done by nuts, bolts and rivets.

There is *nothing fictional* about the ability of Oliver Iron and Steel Corporation to produce the metal fasteners you use, dependably, uniformly excellent and promptly for all essential purposes.

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IRON AND STEEL
Corporation
PITTSBURGH, PENNSYLVANIA
BOLTS . . . NUTS . . . RIVETS
STEEL FASTENERS

WEISMAN AT BRADFORD

Russell A. Weisman, economist for the Cleveland *Plain Dealer,* addressed the April meeting of the Purchasing Agents Association of Northwestern Pennsylvania at the Emery Hotel, Bradford, on the 2nd. His topic was, "Problems of a War Economy."

E. W. Koebley led a general discussion on the Production Requirements Plan. A nominating committee consisting of Ed Walker, W. J. Scott, and C. A. Carlson, was appointed to bring in a slate of new officers for election at the May meeting.

EXECUTIVE NIGHT MEETING AT AKRON

The annual Executives Night meeting of the Akron Association of Purchasing Agents was held at the Akron City Club, April 21st. In addition to a large and representative attendance of buyers and executives of member companies, delegations were present from the Canton and Cleveland Associations. Speaker of the evening was Stuart F. Heinritz, Editor of PURCHASING, whose topic was, "Purchasing for Victory."

JOINT MEETING AT HARTFORD

The second annual joint meeting of the Purchasing Agents Association of Connecticut and the Hartford County Association was held at the Hotel Bond, Hartford, on April 27th. Speaker of the

DAYTON
GRINDING WHEELS
A complete line of abrasive wheels. Inquiries given prompt attention.
Simonds Worden White Co.
Dayton, Ohio



DUNKING IMPROVES STRENGTH

■ We have no accurate statistics as to the relative merits of dunked and undunked doughnuts . . . but we do know that dunking makes a world of difference in the strength of bolts.

As long ago as the days of the renowned Damascus swords, dunking . . . or quenching . . . played an all important role in the heat treating of steel. These keen blades were quenched by thrusting them fiery hot through the thigh of a slave. Through this "baptism in blood" these swords were supposedly endowed with courage and strength beyond all others.



There is no superstition in the modern heat treating of bolts and nuts. Carefully controlled heating cycles and scientific quenching in specially developed quenching fluids give bolts unusual levels of strength, hardness and ductility with better fatigue values. They can be as tough as armor plate, or given a carburized case harder than glass, with a strong, durable core. Other heat treating operations at various stages of manufacture give these fasteners the exact physical properties required for each specific job.

Oliver's heat treating facilities are complete and modernly flexible to produce every physical property required in your fastener specifications. Submit your fastening problems to Oliver for an expert opinion and a prompt solution for any and all War Production metal fastener requirements.

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COMBAT TEAM

Machines and cutting tools – this is industry's crack combat team. Only with first quality tools can you show significant results in war production!

MORSE THERE IS A DIFFERENCE

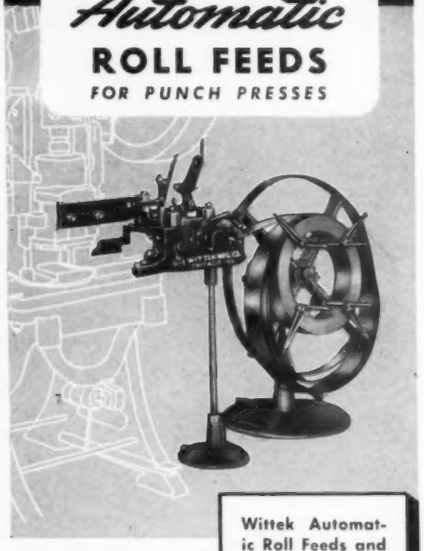
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Mass Production of Hose Clamps Speeded With

WITTEK Automatic ROLL FEEDS FOR PUNCH PRESSES



Wittek Automatic Roll Feeds and Reel Stands are designed to fit all makes and sizes of punch presses and made in various types for every requirement in the automatic feeding of coiled strip stock.

In the all-out war production of Wittek Hose Clamps for aircraft, tanks, jeeps, trucks, and engines, the making of stampings from coiled strip stock is a major operation. To attain this mass production schedule, speed, accuracy and efficiency in feeding the metal to punch presses were essential. Wittek pioneered and developed the Wittek Automatic Roll Feed for that purpose. It has been proven on Wittek's and many other production lines, as the most important contributing factor for maintaining those present high production levels. Wittek Automatic Roll Feeds and Reel Stands are made available to other manufacturers who fabricate parts from coiled stock and demand speed and efficiency in their punch press operation. Write for catalog, prices and specifications.



Wittek Hose Clamps, for over twenty years identified with the Automotive and Aviation industries, are noted for their permanent leakproof hose connections. For original equipment and replacement.

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evening was Andre Schenker, Professor of Modern History at the University of Connecticut, and foreign affairs commentator for radio station WTIC. He spoke on "The World Situation as of April 27th."

NEW ORLEANS MEETING

J. E. Clegg, Special Agent of the Federal Bureau of Investigation, addressed the April 13th meeting of the New Orleans Purchasing Agents Association, at the Jung Hotel. His topic was, "Modern Trends in Criminology."

MEETING AT ST. PAUL

The Twin City Association of Purchasing Agents met at the St. Paul Athletic Club on April 8th. The program included reports on steel by Max Lorberbaum, on paper by Roger Jobes, and on rubber by Arthur Carlson. Two motion pictures were shown through courtesy of the Du Pont Company, one on the manufacture of Du Pont Tontine, and one on game fishing.

JUNIOR BUYERS MEET

Q. Forrest Walker, Economist for R. H. Macy & Co., addressed the April meeting of the Metropolitan Purchasers Assistants Club at Midston House, New York, April 14th. His topic was, "Some Problems of Wartime Price Control."

MAILING BAGS

Makes Easy Mailing of Hard-to-Wrap little things

RED TYE



All Sizes All Kinds FABRIC BAGS with and without TAGS or ENVELOPES

Bulky packages cost more. Avoid unnecessary expense and trouble by using sturdy Chase Mailing Bags. For nuts, bolts, spare parts, samples, odd shaped articles. Eliminate "under separate cover"!

Write for prices!

CHASE BAG CO.
302 EAST PITTSBURGH AVE.
MILWAUKEE, WIS.
One of thirteen great factories

HELPFUL HINTS ON FEED AND SPEED FOR POWER SAWING

You can make your power hack saw blades cut faster and last longer by following these tips from "Metal Cutting", free VICTOR booklet on selection, use and care of hand and power blades, frames and band saws.

SPEED:

In general run tungsten alloy blades below 60 strokes per minute dry, 100 with cutting lubricant. "Moly" and High Speed Steel Blades can be run faster.

LUBRICANT:

When possible, use cutting oil, except with cast iron, copper and brass. But not too much—slight steaming is not necessarily a bad sign.

FEED:

The harder the stock, the heavier the pressure. Too much pressure on soft stock clogs and breaks teeth. In general, use heaviest feed teeth will take. As blade dulls, increase feed.

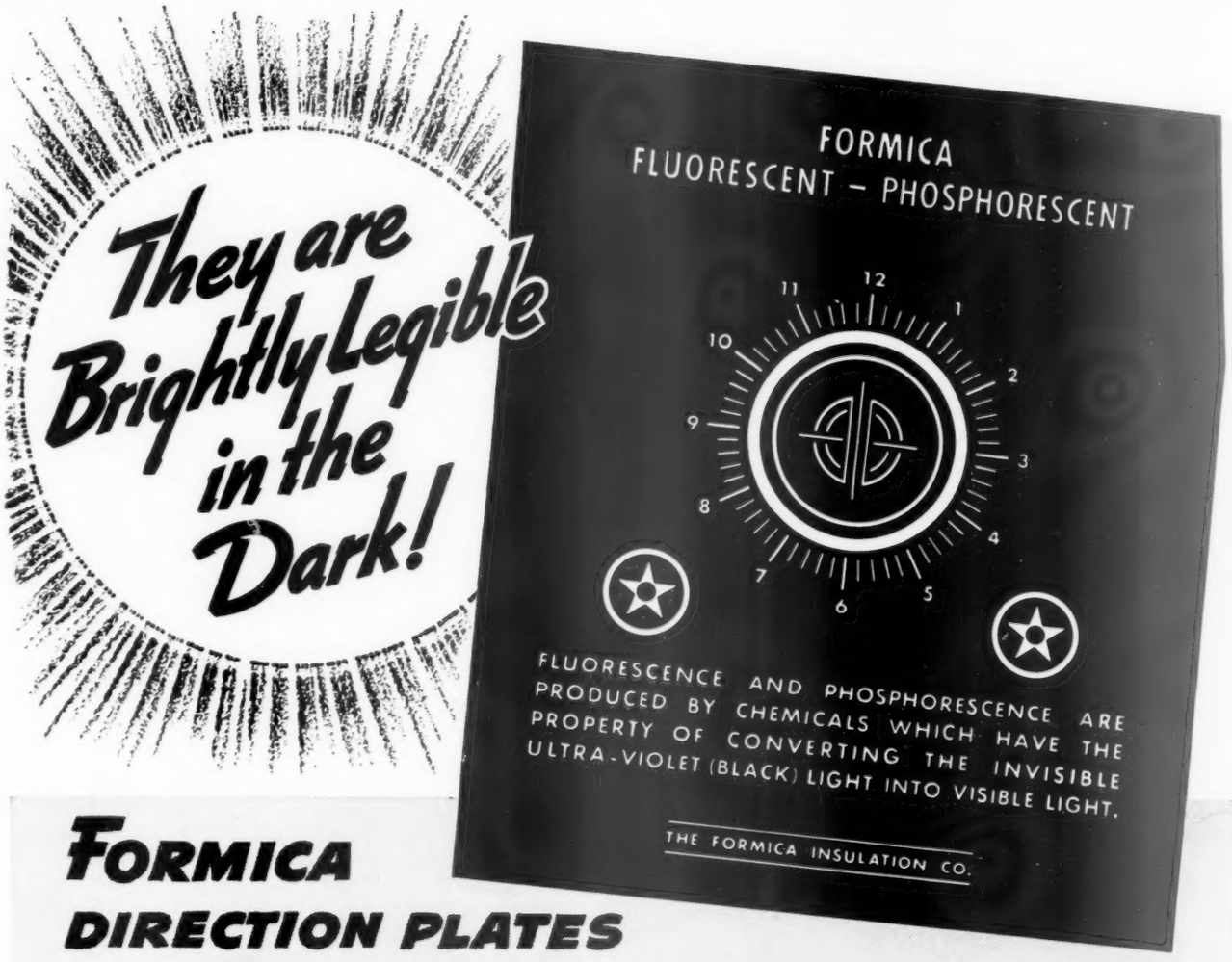
Whenever in doubt, use heavier feed, less speed.

Complete blade selection tables and a wealth of other practical tips appear in the 20-page, illustrated booklet, "Metal Cutting". Write for it now — as many copies as you need — all FREE.



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FORMICA

DIRECTION plates and instrument panels of Formica are available that will be brilliantly legible even in a blackout.

For ships, airplanes, tanks, military cars, or for factories, they make accurate control of apparatus easy when no visible light can be used.

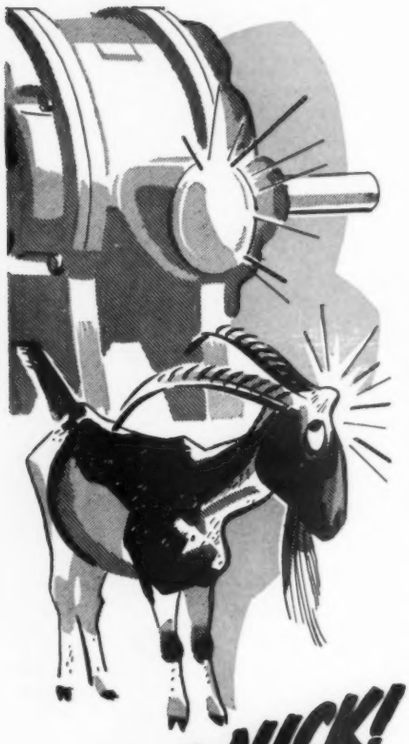
They can also be made up into signs to direct the public in hotels, theaters, and buildings during blackouts, if identical signs are needed in sufficient quantity to make manufacture practical.

These plates may be printed in phosphorescent pigments, which are activated by ordinary white light but will glow for two hours or more after the light is turned out. Another type is fluorescent and will glow as long as it is illuminated by "Black" or ultra-violet, invisible light.

Lettering is available in many colors in either type of direction plate. Let us send complete details.

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Formica Specialties! Many special products have been developed by the Formica research department for special, electrical, mechanical and chemical purposes. If you have a problem that laminated plastics might solve let us hear from you.



NOT A NICK!

NO DAMAGE DONE WHEN WESTINGHOUSE CS MOTORS GET KNOCKED AROUND, EITHER!

THEY'RE YEARS AHEAD WITH RIGID-ONE-PIECE FRAMES THAT PROTECT INTERNAL PARTS LIKE A SAFE!

J-21237

WESTINGHOUSE

SEE PAGE 196 AND PAGE 197

CINCINNATI MEETING

The April dinner meeting of the Cincinnati Association of Purchasing Agents was held in the Victory Room of the Hotel Gibson on the 23rd. Speaker of the evening was Dr. J. Raymond Shutz, President of the Standard Life Insurance Company of Indiana.

COX AT NEW YORK MEETING

Dr. Reavis Cox, chairman of the Marketing Department at the University of Pennsylvania, now on leave to serve as Chief of the Services Programs Branch in the Division of Civilian Supply, WPB, in Washington, addressed the Purchasing Agents Association of New York on April 21st, on "Taking Care of Civilian Supply in Wartime." The meeting was preceded by an afternoon forum on Form PD-3A, dealing with Army and Navy Contracts. James L. Crosbie presided. Discussion leaders were Major N. D. Frank, Air Corps, Eastern District Procurement Office, and Captain H. R. Battley, Air Corps, District Public Relations Officer.

PITTSBURGH ASSOCIATION

J. F. Duesenberry, District Manager of the Association of American Railways, addressed the April 21st meeting of the Pittsburgh Purchasing Agents Association on "The Purchasing Agent and Railroad Transportation." An additional feature of the meeting was the presence of F. Albert Hayes of Boston, N.A.P.A. President, as guest of honor.

The following officers have been elected for 1942-1943:

President, P. B. Zoeller of A. M. Byers Co.

Vice President, R. O. Keefer of the Aluminum Company of America.

Secretary, C. H. Rindfuss of Pittsburgh Screw & Bolt Corp.

Treasurer, E. C. Buerkle of National Bearing Metals Corp.

National Director, H. R. Michel of Westinghouse Electric & Mfg. Co.

Directors, J. B. Connally of Mesta Machine Co.; Alan A. Garland of American Radiator & Standard Sanitary Co.; F. V. Hanaway of Talon, Inc.; J. H. Phillips of Pittsburgh Steel Co.; and K. F. Tiegel of Pittsburgh Piping & Equipment Co.

TOMPSON AT TULSA

Guy A. Tompson, Vice President and General Manager of the Bethlehem Supply Co., recently returned from a period of service as purchasing consultant to WPB in Washington, addressed the Tulsa Purchasing Agents Association at their meeting on April 14th, describing the work of the defense agencies at the Capital.

MOVIE AT DAYTON

An interesting industrial motion picture, "The Romance of Brushes" was shown at the April meeting of the Dayton Purchasing Agents Association, held at the Engineers Club on the 9th.





"Quartermasters of Industry"



Black & Decker Distributors are War Industry's "Services of Supply"

DO you realize how really useful your Black & Decker Distributor can be to you in this emergency? Look at it this way: in the newly reorganized United States Army, everyone who supplies the fighting forces is in the "Services of Supply." In the reorganization of Industry for war production, Black & Decker Distributors are *your* "Services of Supply."

Here's how: Your Black & Decker Distributor stands ready, as always, to help you get the electric tools you need. He has an "on hand" supply of many urgently needed items. Also—all his intimate knowledge of tool *uses* is at your command. He and his men are experts who know ways of cutting corners, of applying to *your* problems methods that are succeeding elsewhere, of boosting production through the *full use* of Black & Decker equipment. Together with Black & Decker's field force (largest in the industry) these Distributors provide you with a "Services of Supply" that is always near at hand.

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LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC TOOLS

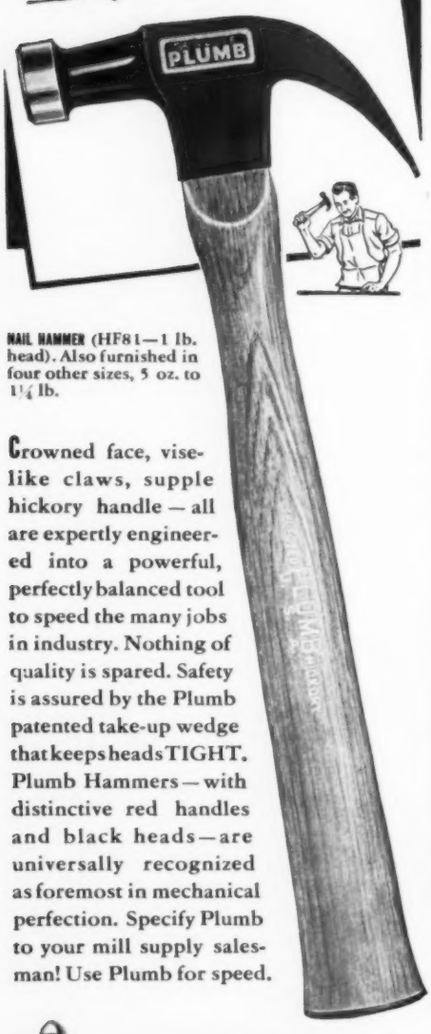




When writing The Black & Decker Mfg. Co. please mention Purchasing

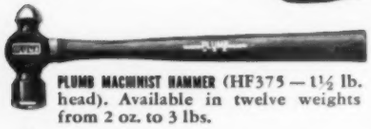
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SPEED



NAIL HAMMER (HF81—1 lb. head). Also furnished in four other sizes, 5 oz. to 1¼ lb.

Crowned face, vise-like claws, supple hickory handle — all are expertly engineered into a powerful, perfectly balanced tool to speed the many jobs in industry. Nothing of quality is spared. Safety is assured by the Plumb patented take-up wedge that keeps heads TIGHT. Plumb Hammers — with distinctive red handles and black heads — are universally recognized as foremost in mechanical perfection. Specify Plumb to your mill supply salesman! Use Plumb for speed.



PLUMB MACHINIST HAMMER (HF375 — 1½ lb. head). Available in twelve weights from 2 oz. to 3 lbs.



PLUMB BLACKSMITH HAND HAMMER (HF282 — 2½ lb. head). Available in five weights from 1½ lb. to 3½ lb.

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HOSPITAL BUYERS ORGANIZE

Purchasing Agents of hospitals in the Chicago district have organized the Chicago Hospital Buyers Association as a medium for the exchange of ideas on hospital purchasing problems, which are growing critical through the advent of priorities, substitutions, and other conditions incident to the war. At the organization meeting it was agreed that price discussion and group buying would be excluded from the activities of the new group, the objective being a better knowledge and understanding of hospital buying, to the benefit of the hospitals and their efficient operation. Officers of the new group are:

President, Charles O. Auslander of Michael Reese Hospital, Chicago.

Vice President, John Luft of Evanston Hospital Association.

Secretary, John L. Moeller of Illinois Masonic Hospital.

CANTON MEETING

The April dinner meeting of the Canton & Eastern Ohio Association of Purchasing Agents was held at the Elks Club, Canton, on the 15th. David Glass led a discussion of critical materials needed in war production. Eighteen nominations were presented for the Board of Directors, the election to be handled by a mail vote and announced at the May meeting.

NEW OFFICERS FOR SYRACUSE ASSOCIATION

The annual meeting of the Purchasing Agents Association of Syracuse and Central New York was held at the Onondaga Hotel, Syracuse, April 21st. The following officers for 1942-1943 were elected:

President, C. J. Kuckoff of Syracuse Stamping Co.

First Vice President, F. S. Thompson of Lowman Folding Box Co.

Second Vice President, Leroy E. Jones of Utica Knitting Co.

Treasurer, L. A. Saunders of New Process Gear Corp.

Secretary, Frank J. Quinn.

National Director, L. W. Sanborne of Crowley's Silk Co.

Directors, A. B. Harris of International Business Machines Corp., and J. B. Orlando of Skenandoa Rayon Co.

INDIANAPOLIS ASSOCIATION

Dr. M. O. Ross, acting President of Butler University, was the guest speaker at a dinner meeting of the Indianapolis Purchasing Agents Association on April 15th at the Severin Hotel.

RUBBER MEETING AT BUFFALO

The April meeting of the Buffalo Purchasing Agents Association, held at the Lafayette Hotel on the 22nd, was



Take the Offensive with

WITT OILY WASTE CANS



WITT Oily Waste Cans are made with foot or hand operated covers.

Place them in convenient locations throughout your plant, where workers can easily dispose of oily waste and other inflammable material.

A WITT Oily Waste can means you have a container that will withstand hard usage, because it is sturdily constructed and will give that extra measure of protection against fire hazards.

They bear the label of inspection and approval of the Underwriters' Laboratories, Inc., and Associated Factory Mutual Fire Insurance Companies.

You are safe with a WITT Oily Waste Can.

Write for catalog or see your jobber.

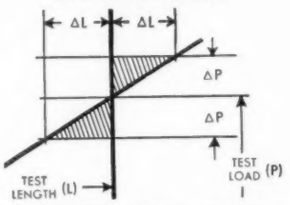
The WITT CORNICE Co.

Winchell Ave. Cincinnati, Ohio

It measures up or it's mustered out

SPRING NEWS

100% LOAD TESTING



The gradient of most springs is susceptible to precision control making possible a simple conversion in the testing method. For example, if the specified load tolerance is Δ P then the corresponding length variation is Δ L. This means that we can apply a fixed load P, measuring only the variation in L. *P.S.* Hunter uses only 75% of the allowed tolerance range in 100% testing.

... Fortunately for you, our testers have no pity. Certain springs, such as these we make for an electrical equipment manufacturer, require 100% load testing—each individual spring checked against specifications. There's a hitch to it. Accurate testing must run in the same race with mass production, for speed today is the essence of all orders. To make 100% testing practical Hunter had to develop its own line of testers. Principal features are an amazingly true-sliding bearing to prevent wobble, and ultra high frequency vibration to eliminate frictional drag effects on gauge readings. The Hunter spring tester is heartlessly impartial, accurate, fast . . . shows you once again that there is much more to spring making than winding a "hunk of wire."



HUNTER

Science in Springs

HUNTER PRESSED STEEL COMPANY, LANSDALE, PENNA.



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YEARS AHEAD IN DESIGN

EXPERIENCE . . .



Westinghouse CS Motors offer two vital advantages under today's conditions.

One is "years-ahead" design—the result of Westinghouse experience, development and research—which goes back to the first industrial use of alternating current.

The other is proved, *known* performance that enables round-the-clock schedules to be set up and maintained without fear of motor failure. Hundreds of thousands of Westinghouse Motors in use for five, ten, twenty years and even longer have proved their soundness.

WESTINGHOUSE INTRODUCED SEALED SLEEVE BEARINGS IN 1925 TO SEAL OIL IN  AND TO KEEP DIRT AND DUST OUT  . . . IN 1928 WESTINGHOUSE ADOPTED RIGID ONE-PIECE FRAMES FOR STRENGTH  AND TO PROTECT AGAINST TWISTING STRAINS  AND VIBRATIONS . . . TUFFERNELL INSULATION  HAS BEEN A WESTINGHOUSE FEATURE SINCE 1930 THIS GIVES EXTRA DIELECTRIC STRENGTH AT VULNERABLE SPOTS  IN SLOT CELLS AND END TURNS . . . ALSO, INSULATION IN EVERY MOTOR IS SUBJECTED TO A SPECIAL WESTINGHOUSE RADIO-FREQUENCY  TEST.

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Call your nearest Westinghouse office today for full details and prompt action. Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa.

CS MOTORS



devoted to a discussion of the rubber situation, production and consumption. The guest speaker was Charles S. Smith, Jr., technical representative of the U. S. Rubber Reclaiming Co.

ROCHESTER JUNIOR BUYERS ELECT NEW OFFICERS

The Rochester Association of Industrial Buyers held their monthly meeting April 14th at the Elks Club. Donald W. Gilbert, Professor of Economics at the University of Rochester, addressed the group on "Buying and Selling in a War Economy." The following officers were elected for 1942-1943:

President, William T. Kelly of Rochester Telephone Corp.

Vice President, Irving W. Lapp of Delco Appliance Corp.

Secretary, Harold W. Russell of Eastman Kodak Co., Hawk-Eye Works.

Treasurer, Matthew J. Kuebel of Taylor Instrument Co.

Directors, Fred W. Haines of Eastman Kodak Co., Camera Works; Richard T. Welch of Bausch & Lomb Optical Co.; and Porter W. Ramsey of Vogt Mfg. Co.

DISTRICT COUNCIL AT LOUISVILLE

A luncheon meeting of the Louisville Association of Purchasing Agents was held at the Pendennis Club, April 18th, in connection with the meeting of Dis-

WHY DON'T YOU JOIN?

the ever increasing army of satisfied users of GRIFFIN BLADES.

"There's a GRIFFIN BLADE for every cutting job."



TRADE MARK

MADE BY
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FRANKLIN, N. H.
SINCE 1880

GENERAL SALES AGENTS
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Griffin HAND & POWER Blades



The "hum" of Industry has become a "Roar"

now that machines are operating every hour of every day to turn out essential products for winning the Victory.

"Getting the count" *accurately* in this program of all-out production demands Productimeters to register or measure machine out-put. Productimeters eliminate waste and save time . . . precious time that can be used to produce *more*. Remember, old-fashioned, near-accurate counting methods mean a slowing up that retards production. Check your machines now, to see where you can use Productimeters.

The line comprises Stroke, Rotary, Alarm, Predetermined and "electric eye" counters; Lineal, Lumber and Wire Measuring meters; Tachometers and Recorders.

SEND FOR CATALOG TODAY!

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1959 N. Buffum St. Milwaukee, Wis.
159 Eddy St. Providence, R. I.

HERE'S HELPFUL DATA ON ALLOY STEELS



★ For Men On Production Jobs

★ For Men In Training Courses

● TELL US WHICH WILL HELP YOU AND IT'S YOURS

"Get more production" . . . "Make every pound of steel and alloys go as far as possible"—those are your first obligations today. We offer you valuable help in handling alloy steels: both where you use them as materials of fabrication, and where you use them as tools. Don't overlook any opportunity to save time or materials—clip, check and mail the coupon *now.*



HANDBOOK OF SPECIAL STEELS

A comprehensive, 128-page book on the properties, uses and best methods of handling, treatment, etc. of tool, stainless and other alloy steels. Plenty of tables to facilitate quick reference. Conveniently pocket-sized.

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ELEMENTARY DISCUSSIONS ON TOOL and STAINLESS STEELS

Two informative booklets that give clear and detailed data on the various types, their properties and handling. Excellent for training courses in metals and metal working.

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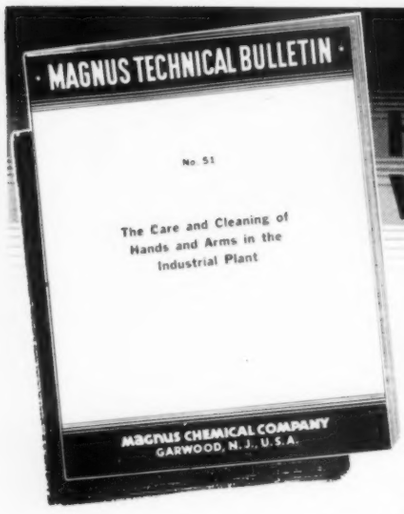
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SAFE HAND CLEANING'S VITAL IN 1942!

Get the Facts

Under war pressure, industrial dermatoses are increasing rapidly.

Industrial safety men agree that one of the main causes of these infections is the use of cheap, unsafe hand cleaning materials. There are certain basic requirements for a safe, economical and effective hand cleaner. Do you know them?

Whether or not you do know them, this Magnus Technical Bulletin No. 51 belongs in your file, because it offers suggestions which can cut your hand cleaning costs by considerable margins, besides giving the facts on safe cleaning of plant hands.

A Basic Discussion of Safe and Economical Hand Cleaning Methods

The facts of the case without frills. What a hand cleaner should do and *not* do—safe detergents and scouring agents—Cleaning agents and on-the-job protection.

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Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants.

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MAGNUS CLEANERS

trict Council No. 7, N.A.P.A. J. Frank Kelley of the Chattanooga Power Board, District Vice President, reported on the conversion of southern industry to full war production, and comments on the situation were given by F. B. Shannon of the American Cast Iron Pipe Co., Birmingham, and N. W. Westbrook of the Southern Ferro Alloys Co., Birmingham.

ST. LOUIS ASSOCIATION

Donald C. Manley, Chief of the Applicant Advisory Section of the Production Requirements Plan, War Production Board, Washington, addressed the St. Louis Purchasing Agents Association at a dinner meeting, April 28th, at the Jefferson Hotel. His topic was, "An Over-All Review of the Production Requirements Plan."

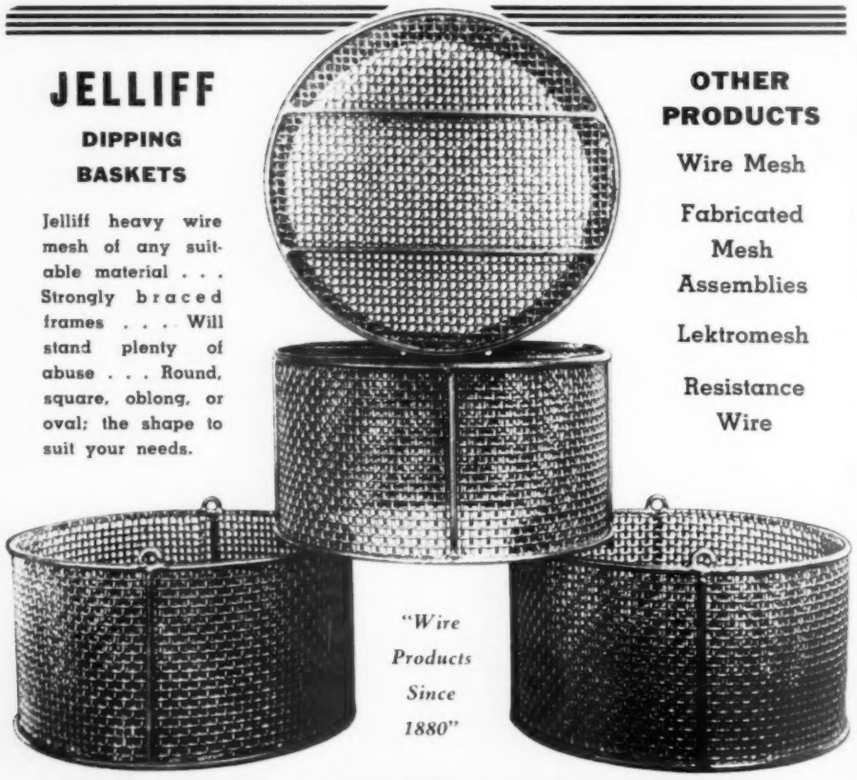
B. D. McMillen, Jr., has been appointed Project Purchasing Agent at Pittsburgh for the new construction division of the United Engineering & Foundry Co., and G. C. Schutte becomes Project Purchasing Agent in the field organization. N. J. Crain is General Purchasing Agent.

J. C. Irvine, formerly Purchasing Agent for the Alaska Pacific Salmon Corp., has been appointed Purchasing Agent for the Everett Pacific Shipbuilding Co., at Everett, Washington.

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Jelliff heavy wire mesh of any suitable material . . . Strongly braced frames . . . Will stand plenty of abuse . . . Round, square, oblong, or oval; the shape to suit your needs.



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GETTING THE *MOST* FROM YOUR THERMAL INSULATIONS...



Official U. S. Navy Photograph

To hasten the winning of today's battle of production, fuel must be conserved—steam pressures and process temperatures must be maintained. Improvement in boiler plant efficiency that results from using thicker insulation often obviates the necessity for installing additional boilers and equipment. There is no skimping of material when armoring the turret of a battleship. Thicknesses are great enough to fully protect the guns and gunners. Similarly, the thermal insulations which are industries' armorplate against the waste of heat should be thick enough to prevent such losses.

The insulations on your boilers, piping and equipment should be checked at frequent intervals, as a guard against unseen losses. And when insulations are specified for new construction, make sure they are thick enough to really do the job.

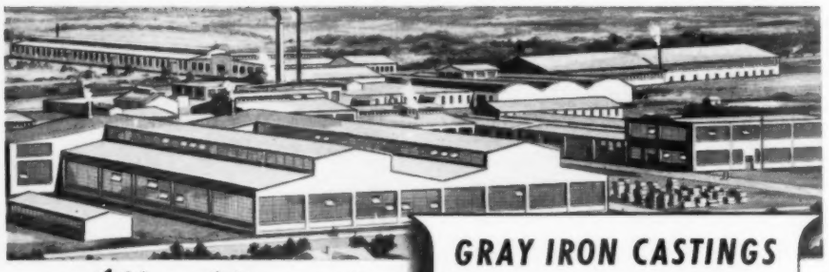
★ **EHRET'S 85% MAGNESIA** and other Ehret heat insulating materials are fully treated from the standpoint of characteristics, selection and application in a new 176-page Heat Insulation Handbook. It will be sent, without obligation, to anyone interested in getting the most from thermal insulations. Write for your copy of Handbook E205



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30-FOR-ONE METHOD BOOSTS GUN OUTPUT

Use of mass production technique to speed toolmaking in ordnance manufacture was disclosed in Toledo recently when an official of a large war plant told how thirty semi-skilled workers were trained to do the job of one specialized craftsman.

Because of the difficulties of obtaining expert toolmakers, who require five or six years of training, production managers of Willys-Overland Motors were faced with the problem of using semi-skilled labor to turn out intricate gun parts.

J. C. W. Smith, manager of industrial relations, explained that approximately 30 hours of an expert toolmakers' hand filing was required after machining.

"Therefore, if we wanted to get out 10 guns a day, it would take 300 hours, or 37.5 tool-makers per day," Smith said, "so we broke the operation down. In place of having one man file 30 hours, we decided to have approximately 30 men file for one hour each."

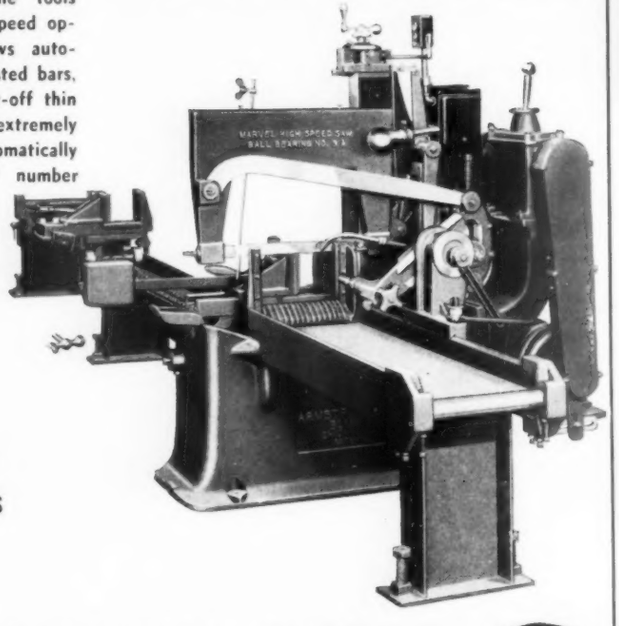
It was necessary only to educate each man for a small part of the total filing, and because it was always the same part he was trained to file, the worker became very proficient on the operation in 30 days, and that job was licked.

As a result, Willys-Overland is able to report that in addition to turning out thousands of army jeeps monthly and other war materials, deliveries of gun parts are running ahead of schedule.

10" x 10"

Capacity and more pieces cut-off from bar per hour than by any other method.

Strictly production machine tools built for continuous high speed operation, MARVEL 9A Saws automatically feed single or nested bars, accurately measure and cut-off thin slices or long lengths at extremely high speeds. Stop automatically when completing desired number of pieces.



MARVEL
No. 9A Production Saws

Full ball-bearing construction throughout. Combination positive-and-friction feed. Depth gauge will raise blade at any desired depth of cut, (for notching or slotting). Blade always horizontal, cuts on draw stroke, raises out of cut on fast return. Rigid saw frame is reciprocated by crank lever or shaper link action (33 1/3% faster than ordinary crank action). Serves as both production and fast, accurate, general purpose saw. Automatic bar push-up can be disengaged at any point, a miscellaneous cut made, and production work resumed immediately.

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These are the Features You Want in a Shovel . . .

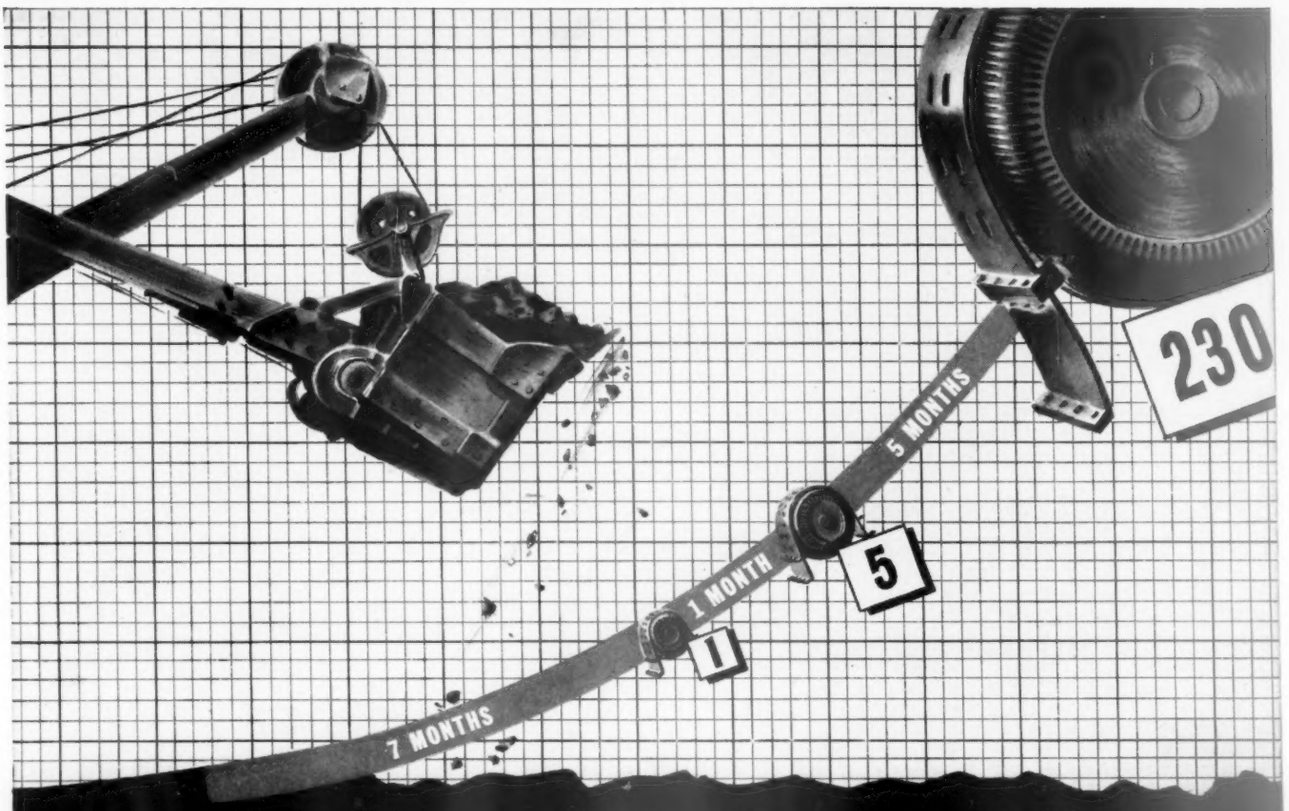


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How Industrial Distributors helped a Generator Manufacturer to start production ahead of schedule

Have *you* learned how to utilize your Industrial Supply Distributor's ability to help you through production emergencies? One big Western manufacturer, rushing a war plant to cover nearly Two Million feet of floor space, discovered that a large volume of important machinery was desperately needed but hadn't even been ordered.

Threatened by heavy penalties, Management called in local Industrial Distributors, who:—

1—Opened up new sources of supply and delivered equipment as fast as it could be installed.

2—Helped the Purchasing Department secure its first stocks of materials and set up a system for keeping further supplies coming on schedule.

With co-operation from everyone, the Manufacturer produced his first unit within 7 *winter months* after ground was broken.

In 60 days, 25 additional units had been completed, and 4 months later, almost 400 more. Output has since moved rapidly toward the monthly capacity of 1,000 units.

This incident is typical of the unusual services that many Mill Supply Distributors are rendering their customers during the Emergency.

We hope you are depending on your Mill Supply House with the same confidence when *buying*, that we do when *selling*. For Cle-Forge High-Speed Drills and Peerless High-Speed Reamers reach your stock-rooms through Industrial Distributing channels exclusively.

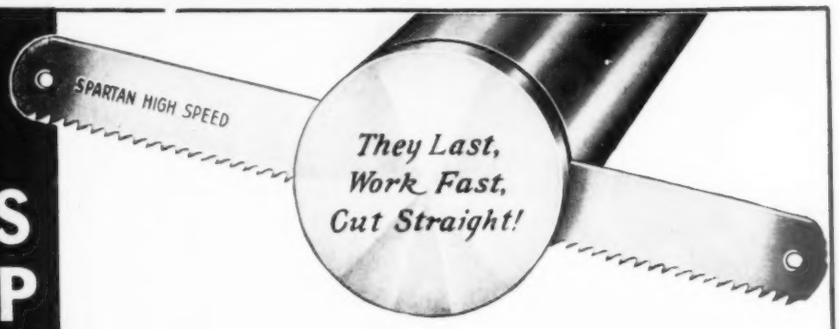
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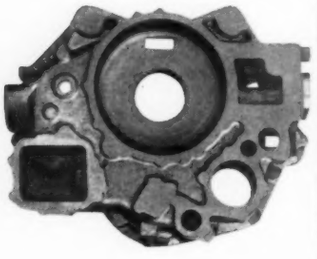
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SEEK NEW USES FOR COMPRESSED AIR

Increased War Production, by broadcasting new and unique industrial uses for compressed air, is the goal of the Blast The Axis Program conducted under Compressed Air Institute sponsorship. Opened as a compressed air idea contest before Pearl Harbor, it was intended to speed defense. Now the terrible crisis confronting the Nation makes imperative wide dissemination of all ideas for speeding war production. Recognizing the contest's value in meeting this urgency, the Compressed Air Institute has redoubled its efforts to make it effective.

According to an announcement made by the Educational Director, two important new steps have been inaugurated. 1—The value of each cash prize has been doubled, bringing the total to $1,000. 2—The duration of the program has been extended one month, to terminate July 1, 1942. It is felt that the added incentive coupled with the extended time will result in increasing the number of contestants, immeasurably.

The panel of three judges has been filled and comprises men prominent in engineering, education and publication fields. Included are: Dr. R. L. Sackett, Vice President of the American Society of Mechanical Engineers and Dean Emeritus, of the School of Engineering, Pennsylvania State College; C. H. Kent, Associate Professor, Mechanical Engineering, College of the City of New York; and Charles W. Lytel, Associate Professor, Industrial Engineering, New York University.

Nationwide in scope and open to virtually anyone in industry, the contest is not restricted to employees of companies comprising the Compressed Air Institute. Skill in writing, grammatical construction will have little weight in awarding prizes. It is not a competition in English composition. The idea and its value to industrial production is the important thing. Entries which have a bearing on some particular aspect of war production, whether or not the idea wins a prize, will be made available to

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New Frasse Chart Combines 3 Standard Steel "Specs"

This new time-saving data chart combines steel specification standards of both the American Iron and Steel Institute and Society of Automotive Engineers — also includes similar Aeronautical Material Specification (AMS) numbers. This effort-saving arrangement shows complete chemical composition for each "spec"—lists AISI and SAE numbers for both 1942 and 1941 to simplify identification.

Latest in a series of useful Frasse charts, it is printed on tough card stock, standard file size. Can be filed, tacked on wall, or slipped under glass to keep it handy. For a copy, without charge, send the coupon today to *Peter A. Frasse & Co., Inc., 17 Grand Street, N. Y. C. (Walker 5-2200) · 3911 Wissahickon Avenue, Philadelphia (Radcliff 7100-Park 5541) · 50 Exchange Street, Buffalo (Washington 2000) · Jersey City, Hartford, Rochester, Syracuse, Baltimore*

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Please send me, without obligation, a copy of your steel specification chart, Section F, Number 1.

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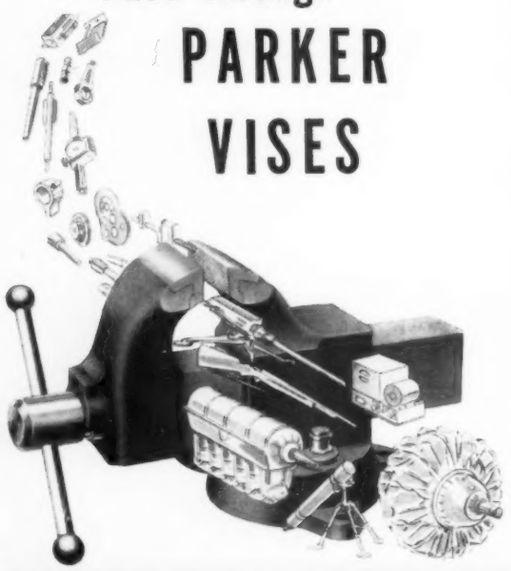
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The Compressed Air Institute is a non-commercial organization, comprising representative manufacturers of air and gas compressors, pneumatic tools, rock drills and compressed air operated equipment. Its offices are located in New York City.

NEW PURCHASING COURSE STARTS AT U.S.C.

The University of Southern California is again offering the course in Purchasing as a part of its program in defense training. The course is under the direction of Dr. Thurston H. Ross, head of the Department of Management and educational director of the Los Angeles Purchasing Agents' Association; the class leader is Philip S. McAllister, his assistant.

The new course started Tuesday, April 7. Classes are held from 7:00 to 10:00 p.m. each Tuesday and thereafter for 12 weeks. After passing a final examination at the completion of the course, a graduation certificate is presented from the University.

Men who have had two years of college including accounting and economics or the equivalent are eligible to enroll. No tuition is charged for this course and it is an opportunity to gain a thorough knowledge of the principles of purchasing procedure.

During each session the first part of the evening is given to general discussion of current problems in the field and the latter half to lectures. Outside speakers thoroughly versed in the profession address the class regularly on current situations.

COLLEGES WILL TRAIN SUPPLY OFFICERS

The Universities of Alabama and Washington, Texas A. & M. and Michigan State College were selected by the War Department to train officers for the Quartermaster Corps as a part of the

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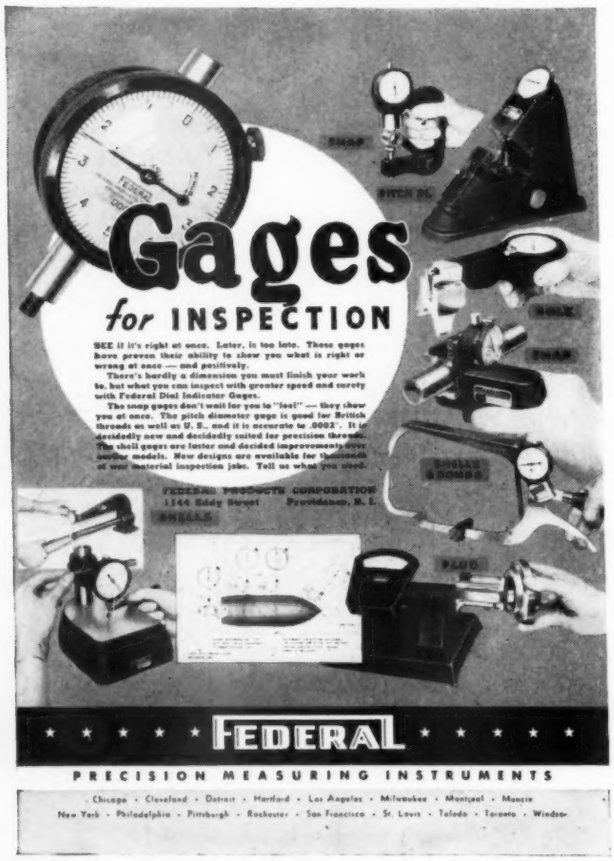
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Kitchen equipment Signode-strapped for Army Camps

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Reserve Officers Training Corps program. Previously only Harvard had a Quartermaster R.O.T.C. unit. The four additional institutions were selected on a geographical basis, and Harvard will continue to serve the Northeast.

To qualify for the Quartermaster R.O.T.C. training, applicants must be under 29, full time college students, and must have completed the basic R.O.T.C. course or its equivalent. National Guard or citizens' military training was ruled out as an equivalent of the R.O.T.C. basic course, and those holding commissions in any other branch of service will not be eligible to qualify for the Quartermaster Corps. Units will be established on the basis of 100 qualified candidates. Successful candidates will receive reserve commissions.

MACKLIN COMPANY PLACES NEW KILN IN OPERATION



Keenly alive to the nation's production needs, and wishing to be prepared for anticipated demands upon its capacity to produce, the Macklin Company of Jackson, Mich., several months ago started an important addition to its plant—a building to house a new continuous kiln. The new section is now in operation, increasing the production of vitrified grinding wheels by 30% and making Macklin one of the nation's most mod-

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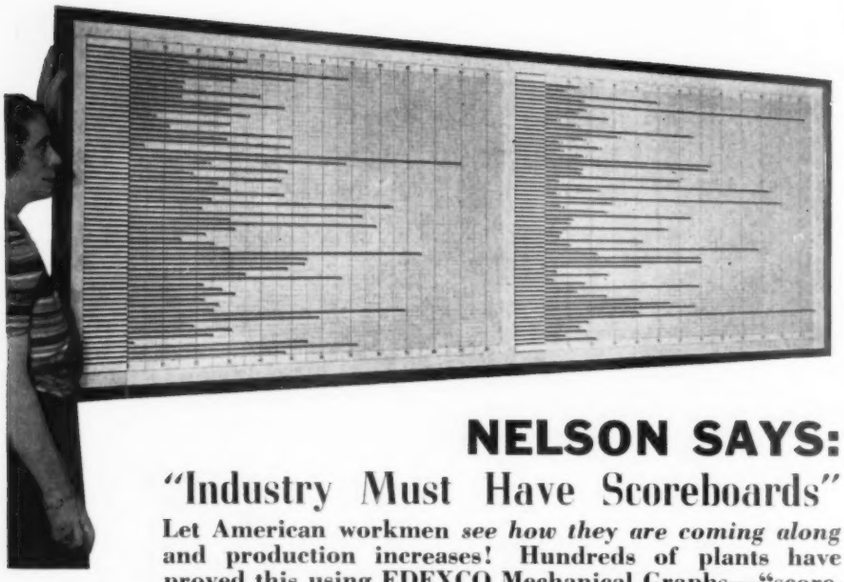
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Let American workmen *see how they are coming along* and production increases! Hundreds of plants have proved this using EDEXCO Mechanical Graphs—"scoreboards" with sliding tapes of several colors, ruled to show actual production against schedule.

Made in various standard sizes and styles; or of special design to fit your particular requirements. Write for bulletin and quotation, state your requirements as completely as possible.

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TOUGH FLOOR PATCH

won't "Strike Out"!

As Uncle Sam calls for production "Home Runs", there is a greater need than ever for smooth, efficient factory floors. Ruts and holes don't go in the Victory League. So get busy with tough RUGGEDWEAR Resurfacer. Just the thing for sturdy patches or a complete, solid overlay. No chopping or chipping required. Merely sweep out spot to be repaired—mix the material—trowel it on. Holds solid and tight right up to irregular edge of old concrete. Cellulose-Processed to provide a firmer, tougher, smoother, more rugged wearing surface. Used indoors or out. Dries fast. Low in cost.

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ern plants now busily engaged in supplying grinding wheels to meet the needs of American industry.

Since its inception fifteen years ago, the Macklin Company has frequently expanded its facilities. From a very small beginning, the company has quickly grown to an important place in the grinding wheel industry. This progress has been accomplished through the coordinated efforts of all departments, the manufacturing department producing wheels of uniform quality, the engineering department continually striving to develop the perfect bonding formulas to give longer life and improved cutting qualities, and a well trained and experienced field force capable of prescribing the proper wheel for the job at hand.

MANNING, MAXWELL & MOORE LIQUIDATE SUPPLY DIVISION

An announcement of major importance in the field of industrial distribution is the decision of Manning, Maxwell & Moore, Inc., to liquidate its Railway and Mill Supplies Division at Jersey City, N. J. This supply house is one of the oldest organizations of its kind serving the metropolitan New York area, and has a national reputation for progressive and efficient management. Despite the growing problems of small orders, narrowing margins, and increased costs in the highly competitive metropolitan market, its business record in 1941 was exceptionally fine. But the pressure of demands on the manufacturing divisions in Bridge-

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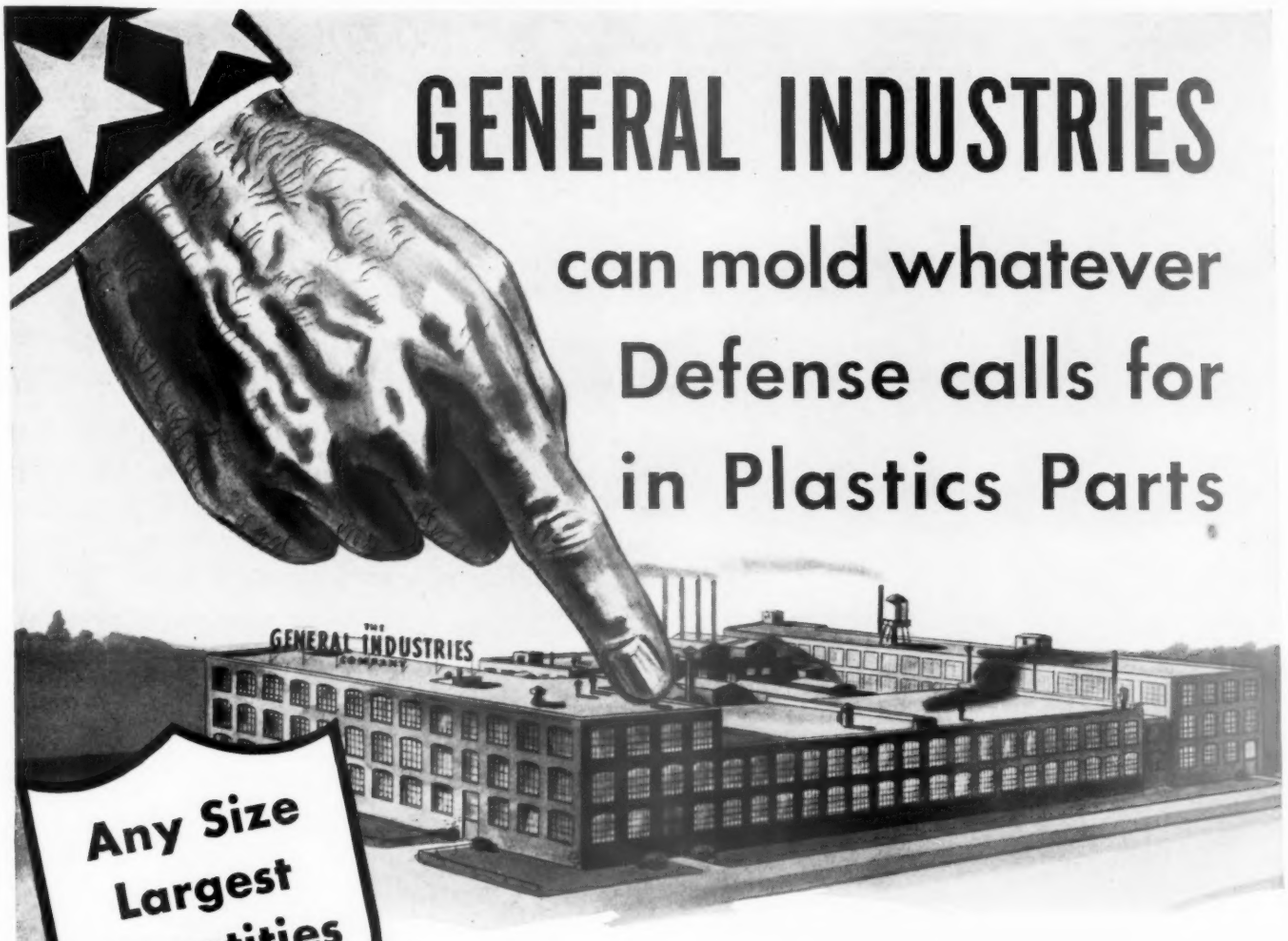
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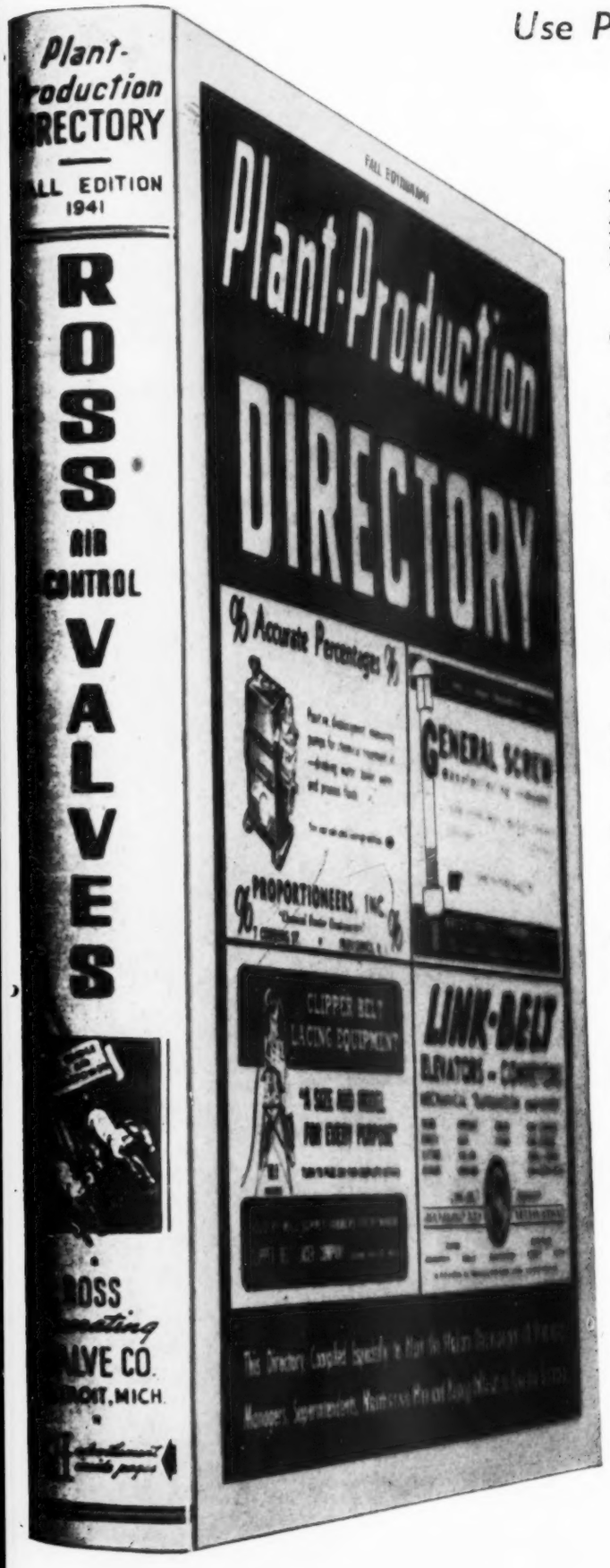
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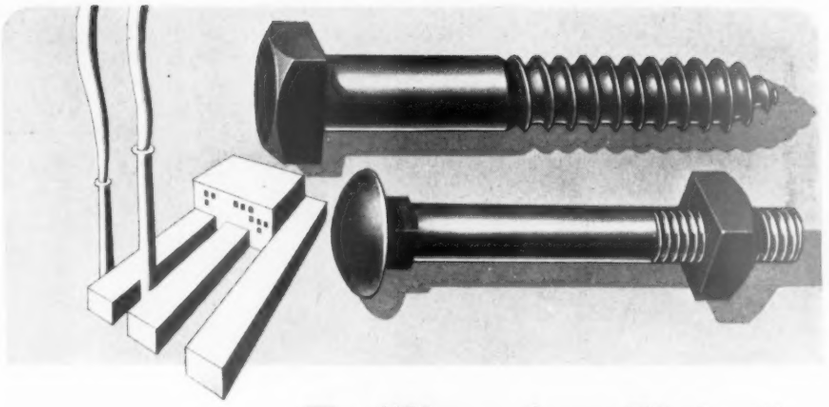
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A Conover-Mast Publication

Sources of supply found quicker and easier with PLANT-PRODUCTION DIRECTORY

port, Boston, and Muskegon, and a broad program of expansion in these manufacturing operations, indicated the advisability of concentrating exclusively on this phase of the business. As explained in a statement to the employees of the corporation: "The goods that we distribute in Jersey City can be distributed by the manufacturers themselves or by other distributors. The goods which we, ourselves, are asked to make for the National Defense Program can only be made by ourselves." To properly protect this necessary expansion in manufacture, the company resolved to step out of the distribution picture, writing "Finis" to a long and honorable chapter of service to industry.

The stocks at the Jersey City warehouses have been liquidated in an orderly manner, with due regard for priority ratings of customers and in line with the company's well known policies of stable markets. Without disturbing the distribution situation, the million dollar stock has been made immediately available for use in the war effort. The marine repair division, which had its headquarters at the Jersey City plant, will be continued, and the majority of the personnel have been assigned to new duties in the organization. Robert J. Kelley and G. A. Stebbins, well known throughout the industry for their progressive direction of industrial sales, will take over sales executive positions in connection with the manufacturing divisions.



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Keep your production soaring..with

TRIPLEX *QUICK FITTING* THREADED FASTENERS

Hundreds of war industries are speeding the making and delivery of vital war equipment by using uniform accurate quick-fitting Triplex Threaded Fasteners. The Triplex Screw Co., P. O. Box 1768, Newburgh Sta., Cleveland, Ohio.

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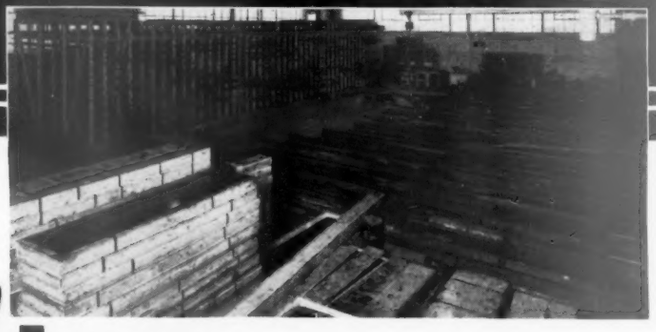
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OFFICES IN Boston, Chicago, Cincinnati, Cleveland, Detroit, Greenville, S. C., Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Montreal, Buenos Aires, Mexico City, London. In England: Veeder-Root Ltd. (New address on request). In Canada: Veeder-Root of Canada, Ltd., Montreal.

PROBLEMS INVOLVED IN PLANT CONVERSION TO WAR WORK

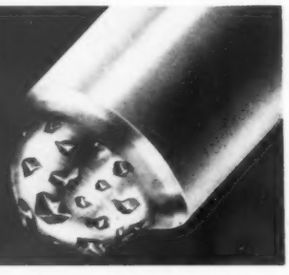
By FREDERICK B. HEITKAMP

Vice President
American Type Founders, Inc.

If we read the newspapers, the trade journals, magazines, and listen to the numerous informative talks on the radio we know that the present main manufacturing plants have already been filled with war orders; in fact, long before Pearl Harbor many of them were well filled. Other plants had to be entirely revamped, taking out the normal product, as in the case of the automobile industry. New tools had to be secured. New jigs and fixtures which were placed on these tools had to be made to adapt themselves to the new part. All of this required new planning, new layouts by men working on into the night, new training of personnel. But after a short time—much shorter than people realize, the main manufacturing plants of this country became loaded. The next thought was to build new plants—plants in which one product was built entirely from beginning to end. But when we look at our total program we find that such existing and such new manufacturing capacity as has been created, is not enough to carry through this tremendous program toward which we have set our earnest efforts.

The nation has been compelled to turn to plant conversion. By plant conversion we mean to change over from the manufacture of a normal product to a prod-

IMMEDIATE DELIVERY OF THESE *DIAMOND DRESSERS*



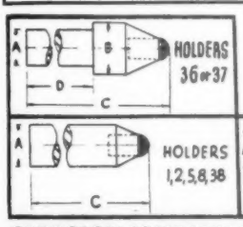
Carboloy Diamond Dressers are in stock ready for immediate delivery in eight most commonly used types of holders.

You get this prompt service plus these cost-saving features: No resetting—no lost diamonds—up to 90% diamond utilization—stands unusual abuse—saves at least 25% in annual dresser costs.

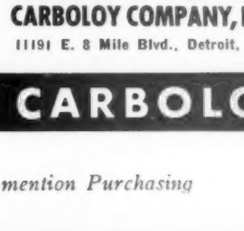
Complete ordering data below—or send for Catalog DR-100.

Grinding Wheel Diameter	Grinding Wheel Width	Correct Dresser	Price Each
Up to 20"	Up to 1½"	2-B	$ 9.60
Up to 26"	Up to 2½"	3-C	12.60
Up to 42"	Up to 8"	4-D	15.35

Mounted Free in Desired Holder. Standard Holders shown below. Special types when needed.



Holder Number	1	2	5	8	36	37	38	S-16-A
A	7/16	1/2	5/8	7/16	7/16	1/2	7/16	7/16
B					5/8	5/8		5/8
C	1 5/16	1 5/16	4	1 1/4	2 1/8	2 1/4	3 1/16	1 5/16
D					1 1/4	1 1/4		11/16



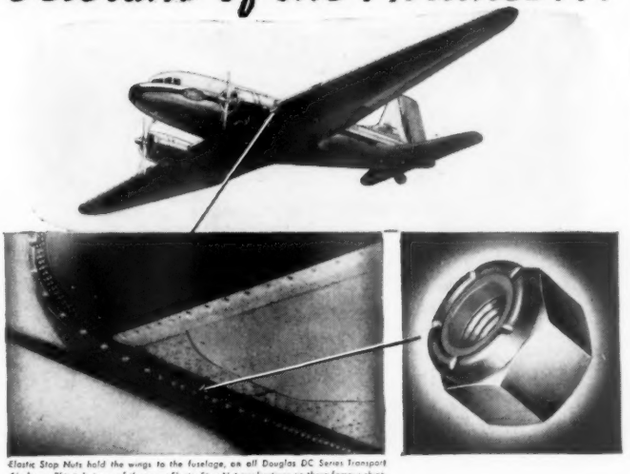


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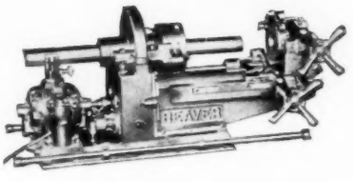
Every Douglas DC Series Transport is fastened at important structural and secondary connections with Elastic Stop Nuts . . . more than 30,000 nuts on each ship. That is one of the reasons back of their remarkable records for safety and sustained performance.

» Write for Catalog and sample nuts for testing

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Elastic Stop SELF-LOCKING NUTS

The A-B-C of Pipe and Bolt Machines

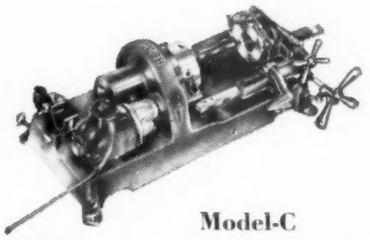


Model-A

A high-speed heavy-duty deluxe Pipe and Bolt Machine. Range ⅛ to 2-inch—up to 12-inch with geared tools and drive shaft. Bolts, ¼ to 2-inch. Wt. 415 lbs. Ask for Bulletin-A.

Model-B

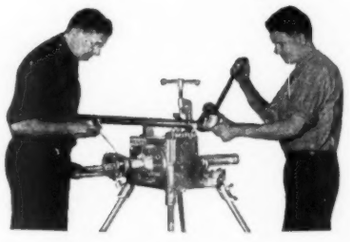
A compact utility Pipe and Bolt Machine combining many features of Model-A with the easy portability of Model-C. Range ⅛ to 2-inch — up to 8-inch with drive shaft and geared tools. Bolts up to 1½-inch. Weight 280 lbs. Ask for Bulletin-B.



Model-C

A sturdy little Power Unit

Converts Hand Pipe Tools into Power Tools from ⅛ to 8-inches. Threads 8-inch in 6 minutes. Threads bolts up to 1½-inch. Equipped with automatic chuck wrench ejector—a safety feature. Two men can use it at the same time without interference. Easily portable — weighs about 150 lbs. Write for Bulletin-C.



BEAVER PIPE TOOLS

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Portable Electric Tools are made of Critical Materials

DO NOT Use Them Carelessly





A glance at the ingredients of a portable electric tool shows why you should use the tools carefully.

Stanley Portable Electric Tools are in tremendous demand. Unless you are engaged in war production work, you may find it difficult to replace the ones you have. If some part wears out, don't throw away the tool – have it repaired or rebuilt.

We shall do everything possible to continue to furnish repair service and replacement parts for all Stanley Electric Tools. Stanley Electric Tool Division, The Stanley Works, New Britain, Connecticut.

STANLEY
ELECTRIC TOOLS

uct which is used exclusively for war activities. But all plants were not able to take on prime or major contracts; that is to say, for instance, the manufacture of a tank. So we find a new problem that is being solved by a combination of plant conversion and sub-contracting. There is no great mystery to this sub-contracting program. All, or most large companies are now doing a certain amount of buying of units for final assembly, from other companies. That is, they are sub-contracting a certain amount of their parts. Even the largest of airplane plants has to secure what has been called "gadgets" from the outside, in order to complete the final assembly of their planes.

But I am speaking tonight of the new type of manufacture made necessary if we are to have an all-out effort and if we are to utilize every possible source of manufacturing capacity that can be converted to the winning of the war.

In the case of the American Type Founders there was a definite indication over a year ago of a shortage of materials to make our normal product. This led to a decision to get lined up on war production. As we gradually reduced the manufacture of our normal product, we brought in the war work until now the main plant is producing far more on war products than it ever did in the normal period on its own standard product, made possible through the additional shifts, additional hours of work, additional efforts and intensified drive to get the work out.

Since the initial effort and the filling of the main plant with war orders, an additional plant has been built for the manufacture of one particular war weapon. Another plant was purchased and is being operated in Massachusetts. Another plant is being



SAVE MATERIAL — save stock — save money as well by making machine parts *less bulky!* Pack more holding-power in smaller parts, narrower flanges, more compact assemblies! Use ALLEN Hollow Screws for further streamlining and reducing structural bulk!

The greater strength of Allen screws permits *smaller* screws to be used. . . Their internally-engaging hex keys require *less room* for wrench-movement in setting up. . . The keys themselves are the most economical form of wrench possible to make, — the most *saving* in metal.

Utilize these Allen features to help Uncle Sam hold on to his precious bundle of stock. He cannot have it wasted; he needs every ounce of metal to hurl at the enemy. Even a *little* saving on *each* machine adds up to the weapons that WIN.

Your local Allen Distributor will accommodate you to the utmost of his capacity and available supplies.



THE ALLEN MFG. COMPANY
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We're Plenty Busy Now Working for Uncle Sam

And it is our hope that we may be able to serve him to capacity for the duration. At present, we can book, for relative early delivery, a limited number of orders for screw machine parts in sizes up to 3/4", in all metals, aluminum particularly.

After the "fires" throughout the world are out and the emergency is over, "Newton" will be happy to resume its old-time unlimited service to the public—improved by added experience and augmented equipment.

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NEWTON
SCREW MACHINE PARTS
(SEPARATE OR ASSEMBLED)





★ Deliveries of wire are controlled by the fact that, with America at war, there is one course to follow. That course is to place at the disposal of America—and those producing for the armed forces—every bit of knowledge of wire and all the facilities for its production needed to help win this war.

We commend the thought to other manufacturing organizations that less than this 100% all-out war effort right now might well be responsible for serious losses to the allied cause, needless prolongation of war and lamentable loss of men.



To you who use **SHAPED WIRE** we suggest, also, the immediate adoption of wires of standard diameters, shapes and analyses. Special runs cause further delays in deliveries. Analyze methods with the object of reducing waste.



It is recommended that users of **WELDING ELECTRODES** make certain that they use rods of the most efficient size and of correct analysis; instruct their men to cease the practice of bending electrodes and insist that electrodes be used down to the holder.

To other users of wire we also recommend adherence to policies of standardization and conservation.

Collect every fragment of scrap, bale it and get it on its way back to the mill

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Salt Tablets—Dispensers

Prevent heat sickness and fatigue in perspiring workers. Full stocks, prompt shipment. Order now.

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Rub on lenses to prevent fogging due to perspiration. Inexpensive. Order a supply.



• **WRITE** for new leaflet "Hot Weather Hygiene."

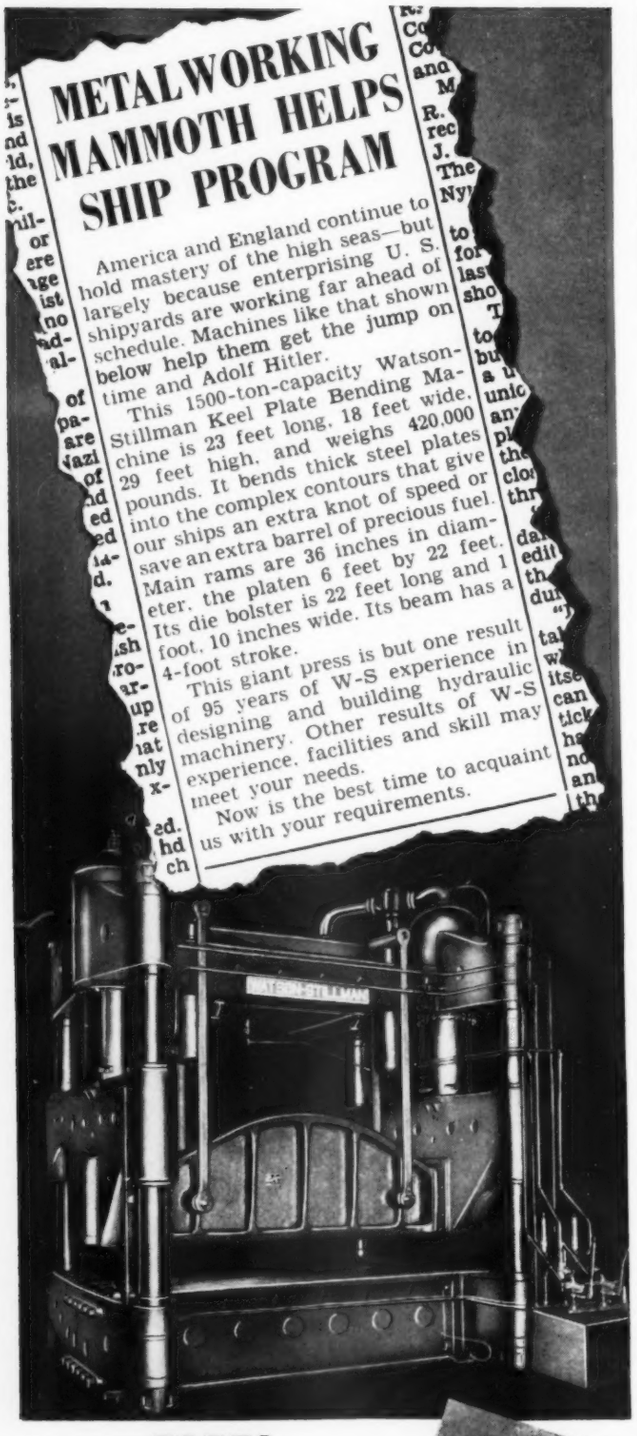
PULMOSAN SAFETY EQUIP. CORPORATION
Dept. P, 176 Johnson St., Brooklyn, N. Y.

set up in Northern New Jersey. Another plant is being set up for the assembly of a unit for two automobile companies, three miles away from our main plant.

How were we, as manufacturers of a normal industrial product, able to secure orders for war work? This was done by going to, and I mean seeking out, the Army and Navy Placement Bureau agencies where contracts were being let. We had to sell ourselves and our services and were successful in doing it. After that, through the reputation obtained in the initial effort, orders sought us out. Through the OPM coming to us and asking us to get facilities for certain products for prime contractors, we, in a sense, became a subcontractor and in turn, sub-let ourselves.

Management of war plants is a secret of success of war production. Top executives in our organization were divided and given definite responsibilities in the various plants. New men were hired to supplement them in their capacities. Men were brought in from the normal sales department in the field, from all over the United States, and were given jobs they could do. Some were engineers and some were not. From the service department in the field, skilled men were brought in and put on the assembly lines and in the shop in our war plant. Take my own case: As vice president and sales manager of our company, with the normal product gone and nothing to sell and having had 15 years in the machine tool industry, it was logical that I should take over the management of one of the plants. We are now operating an assembly plant, the parts for which are supplied by over 43 sub-contractors located from the Atlantic coast as far west as Iowa.

Sub-contracting depends upon efficient management. In the first place, having decided upon the product which is to be built and having obtained your draw-



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HYDRAULIC HANDBOOK

Bulletin 120-A—12-page hydraulic engineer's handbook—is yours for the asking. Capacities of Hydraulic Rams; Orifice Discharge of Water; Seamless Pipe Properties; Strengths of Materials; etc., etc. No advertising. Write The Watson-Stillman Co., Roselle, N. J.

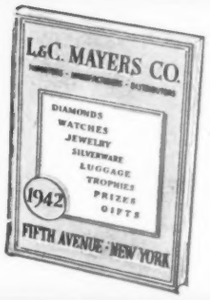


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new gummed paper

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The new (limited) National Emergency Edition of the McLaurin-Jones Guaranteed Flat Gummed Paper HANDIBOOK is ready. 81 pages to tell you everything you ever wanted to know about gummed papers. Loaded with ideas, suggestions, use-charts, white and colored gummed paper for every conceivable need—nothing has been omitted for either the technician or the idea man!

Distribution of this limited edition must of necessity be restricted to printers and users of gummed papers. We would appreciate it if you would place your request for a copy through your McLaurin-Jones merchant, or if you prefer to write us directly, please mention your paper merchant's name.

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McLAURIN-JONES CO., BROOKFIELD, MASS.



YES... you can double and treble your production rate and lower production costs at the same time, with Chicago Multiple Rivet Setters. Versatile, automatic Chicago Riveters are made for a wide variety of uses in both light and heavy duty types.

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Write for Special Automatic Rivet Setter Bulletin or submit blue print or sample assembly for recommendations.



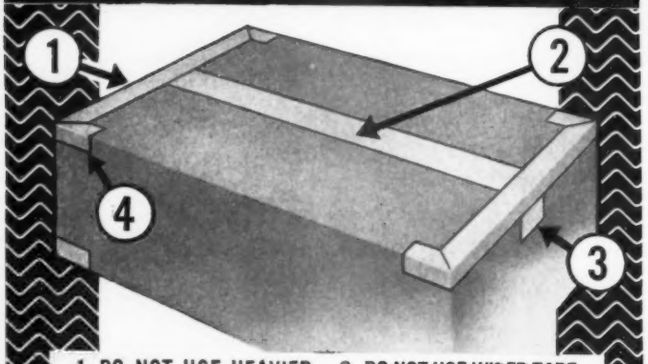
THE Model 55 (illustrated) which automatically feeds, inserts, and clinches two rivets at each stroke of the machine, has adjustable centers which are easily and quickly set.

Chicago RIVET & MACHINE CO.
9607 West Jackson Blvd., Bellwood, Illinois (Chicago Suburb)
Tubular and Split Rivets in All Rivet Metals
Automatic and Manual Rivet Setters for One to Four Rivets at a Stroke

ings and blueprints and specifications which have been OK'd by the Ordnance Department, let us say, you must located adequate sources of manufacture. This means the weeding out of a great many manufacturers who may want to do the job but who really are not set up to do it. When the sub-contractor has been finally selected even then it is necessary to help him on his production methods . . . even supply him with machine tools . . . even help him in the manufacture of jigs and gauges and fixtures. In many of these plants it is necessary for us to place resident production engineers who will expedite the production, help on production difficulties, supervise the inspection and in general, represent us as a resident manager in that plant. He must be sure that all the parts that come out of that plant, pass the proper inspection qualifications so that when they come to our plant and go on our assembly line the parts will fit. This whole war program has very definitely shown that many of us who thought our plants were capable of manufacturing many things actually have a great deal to learn when we change from the product we have been making, into a new product entirely.

Why do we have all the headaches and why should there be any delay? Sub-contracting multiplies the normal type of manufacturing procedure several times. Any management would prefer to have under one roof all of the manufacturing problems. But multiply this by 43 different units, located in different geographical areas, all of which have had to convert from their normal product to a new product and you can see the difficulties that are involved. Furthermore, we have had to supply the sub-contractors with materials, locate sources of supply for castings, for forgings and bar stock—all raw materials. We have had to estab-

TIMELY TIPS ON TAPE ECONOMIES



1. DO NOT USE HEAVIER WEIGHT TAPE THAN NECESSARY TO SAFELY SEAL CONTAINER
2. DO NOT USE WIDER TAPE THAN NECESSARY PROPORTIONATE TO CARTON WEIGHT AND SIZE
3. DO NOT RUN CENTER STRIP MORE THAN 2½" DOWN SIDE OF BOX
4. DO NOT RUN END STRIPS MORE THAN 2" AROUND CORNERS

Keep moisteners clean, in good repair and properly filled with water.
Do not tear tape from moistener until container is ready to be sealed.

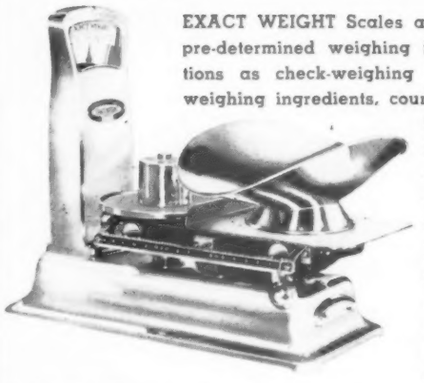
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lish the proper contacts with the Ordnance Department and with Washington to set up a means of inspection supervision by local Ordnance Departments in these sub-contractors' plants. Designs of the product are being constantly changed to improve these products where faults have been found in actual combat which still further adds to the complication of manufacture but nevertheless are desirable in the overall accomplishment of program. People who are earnest, who are working on these programs are thoroughly fatigued and the question of personnel relationship and ability to get these things done enters into the problems as a whole.

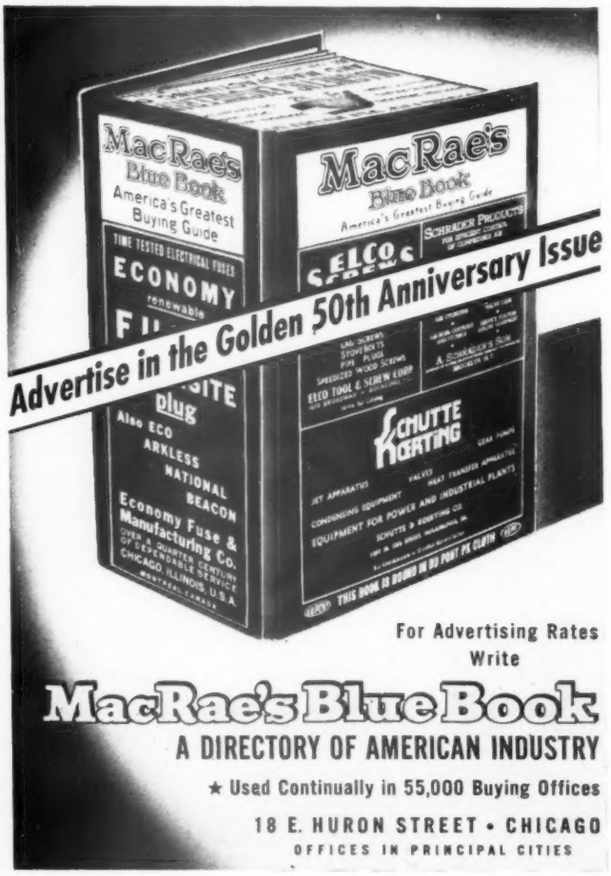
But with all of these headaches what progress has been made? The entire nation now is in production but much planning and scheduling and organization and thinking before the job is put on the machine, still has to be done. The average layman has no conception of the mass of details and the mass of work involved, and naturally becomes impatient. That same layman, however, will be equally amazed and startled when our whole production machine, geared up as it never has been geared up before to a single purpose of winning a war, is in full operation, and it is rapidly gaining momentum, hour by hour.

From a talk given at the Machine Tool Electrification Forum, East Pittsburgh, Pa., April 7th, 1942.

* * *

CORRECTION

An item in the March issue stated that the Johnson Rubber Company of Middlefield, Ohio, had closed its plant. That information was in error. We are advised that the 47-year-old company is working 100% in the manufacture of war products.



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WARTIME ORGANIZATION OF A PURCHASING DEPARTMENT

(Continued from page 58)

low-up and expediting have assumed new importance as a factor in purchasing, demanding consistent and specialized attention which the buyer or chief clerk are no longer in a position to give. It is no longer unusual in these days to find an expediting section—in the purchasing office and in the field—outnumbering the buying staff itself. A special discussion of this function appears elsewhere in this issue.

Research and Information

Where practicable, and where pressure duties preclude the possibility of having the buying staff itself undertake the extra duties, the assignment of an individual or a group to the responsibility of collecting information on substitute materials not previously bought is a service that can add much to the efficiency of a buying department. Among the activities of such a division, working closely with the buyers, is the building of an information file in advance of the need, compiling lists of potential suppliers of new materials, calculating costs, arranging for tests and samples, etc. A continuing study of conservation of materials and better utilization could well be carried on by such a group.

Salvage

It is the recommendation of the Bureau of Industrial Conservation that a director of salvage activities be appointed in each organization. In all but the very



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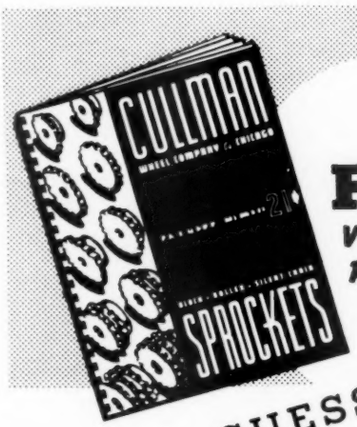


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largest companies, this will normally come under the supervision of the purchasing executive, who is responsible for reclamation of materials and disposal of scrap.

Clerical Operations

Frequent reference has been made to the increased volume of clerical work imposed by present regulations. Aside from the factor of volume, the importance of this work has increased measurably. The chief clerk of a purchasing department today can be much more than an office manager, supervising routine operations and directing the flow of paper work. In many cases, the most practicable form of organization is to bring such responsibilities as the priorities' division and the handling of inventory records directly under his control. Also, with new restrictions on available office equipment, and the need for efficiency in every office operation, he may take over the direction of maintenance and pooling of such facilities to serve the entire organization.

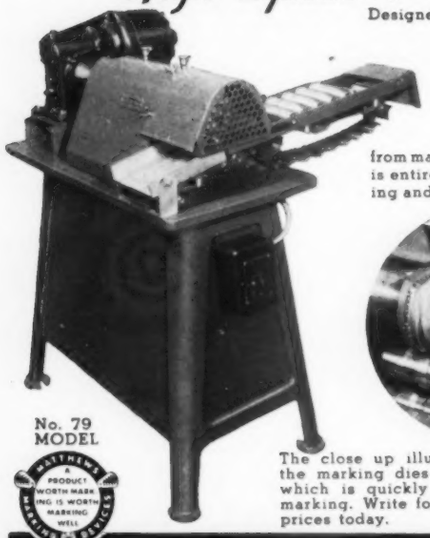
Production Planning

The objective of all this delegation of specific responsibilities is to free the Director of Purchases for his most important and most fruitful work—cooperation with manufacturing and engineering executives. This is not necessarily on a formal basis such as committee organization, but to the extent that it can be achieved, formally or informally, depends the successful functioning of the company as a whole.

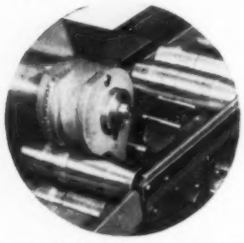
Production planning in peacetime, and with normal markets, was relatively independent of purchasing considerations. But today the availability of materials is

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the first factor in any production program and the purchasing executive has almost the decisive voice. It is not his function to dictate manufacturing schedules, but no schedule can be planned without considering the materials' angle first, and there are many times when this will determine policies and processes to be used, as well as time schedules. There has never been a time when all the cogs must mesh perfectly to keep the wheels of production turning.

Similarly in respect to specifications, availability—which is a factor of purchasing—is the controlling consideration. Working with production, design and engineering executives, the Purchasing Agent must see to it that the specifications on which he buys are flexible and that they steer away from scarce or critical materials, and will still measure up to the purpose for which the material is needed.

Working Together

Substitute materials, another aspect of the same problem, may have the suggestion originating in the purchasing department, and must fulfill the same dual test of suitability for production and engineering and availability for procurement.

The closet sort of liaison between these departments is therefore essential, and a prime object of efficient organization is to equip the Purchasing Agent to make his contribution to this cooperative policy-making, to represent the materials point of view, and to advocate the suggestions which properly originate in the purchasing department and which in many cases will determine the practical solution. It is only through working together that the problems of the individual company will be solved, and the larger problems of national interest in war production.





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A. S. Joseffy (right), salesman, General Electric Supply Corporation, Grand Rapids, Mich., and E. B. Clement, Clement Industrial Electric Co., Grand Rapids, are discussing G-E conduit and wire for a special rush job.

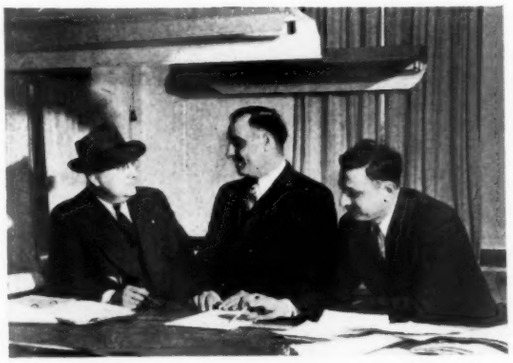
H. A. Brady, industrial salesman for General Electric Supply Corporation, Pittsburgh, Pa., here is getting Fiberduct samples ready for a demonstration to customer. Mr. Brady likes to demonstrate products wherever possible.



For Wiring Supplies to Aid Plant Efficiency



W. C. Macpherson (left), salesman and J. C. Delehanty, order edit supervisor, General Electric Supply Corporation, Dayton, Ohio, are here deciding methods for prompt delivery of a large amount of BX urgently needed.



C. C. Shroyer (left), supply sales manager, General Electric Supply Corporation, Toledo, Ohio, helps customers by carefully scheduling delivery of materials. Here he is conferring with Max Romanoff (center), treasurer and general manager of the Romanoff Electric Co., Toledo, and J. B. Wilbarger, electrical foreman for the same company.

SEE YOUR G-E WIRING MATERIALS DISTRIBUTOR

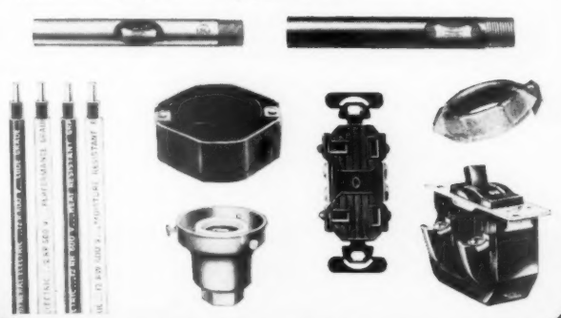
Wiring materials for new war industries . . . for plant modernization . . . for maintenance! G-E Wiring Materials Distributors can supply them all. These materials are high quality too, made by one manufacturer and include conduits, wires and cables and wiring devices.

There's a G-E Wiring Materials Distributor right in your own territory. Ask a representative to call. He'll show you materials particularly suited for your requirements. His experience will be valuable in helping you to plan wiring and to select materials.

Your G-E Wiring Materials Distributor is eager to cooperate with you in aiding the war effort through providing help on priority requirements . . . giving information on government specifications . . . making prompt delivery of needed materials. Make use of this assistance.

G-E WIRING MATERIALS

See your G-E Wiring Materials Distributor about G-E conduit, boxes and fittings, wire and cable and wiring devices to solve your wiring problem.



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